IN THE

STATES SUPREME COURT,

OCTOBER TERM, 1923.

No. 185.

THE JOHN E. THROPP'S SONS COMPANY,
Petitioner,

v.

FRANK A. SEIBERLING,
Respondent.

BRIEF FOR PETITIONER.

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Statement.

This case comes up on Writ of Certiorari to the Circuit Court of Appeals for the Third Circuit.

It is a patent suit in which the Circuit Courts of Appeals for the Sixth Circuit and Third Circuit (Judge Davis dissenting) have respectively held that the same claims of State patent No. 941,962, dated November 30, 1909, for a Tire Making Machine, are invalid and valid. The patent has been held invalid on the full record by four Circuit Judges and one District Judge. It has been held valid by two Circuit Judges. The original decision of the District Court in the Sixth Circuit is of no moment because that Judge did not have the most important prior patent before him.

For the purpose of clearness, the Petitioner will hereinafter be referred to as Defendant, and the Respondent as Plaintiff.

The subject matter is a machine for making the outer shoes or casings of pneumatic automobile tires, which casings are mainly composed of fabric treated with rubber.

So Called Hand Making of Tires.

Although tires are, for convenience, referred to as "hand made" and "machine made", there is in reality no such clear distinction. Hand and machine are used in making both kinds, although the hand receives somewhat less assistance from machinery in the former case than in the latter. The large participation of the hand in the so-called machine operation is explained *infra*, p. 45. The hand operation has been described by the Sixth Court of Appeals and this description adopted by the Third Court of Appeals (Vol. II, p. 404) as follows:

> "An annular metallic core having spokes and a hub was centrally mounted upon a shaft so that it could revolve, the core thus resembling the rim or tire of a wheel. This core was approximately circular in cross-section, and its cross-section diameter as well as its entire diameter through the hub from edge to edge of the rim were proportioned according to the size of the casing to be made. The operator coated this core with an adhesive substance. He then took a strip of rubber-impregnated fabric which would stretch out to be as long as the circumference of the core, and in width somewhat less than the circumference of the cross-section. As he revolved the core on its hub, he stretched and pasted this fabric strip upon the core, pressing and shaping it with

his fingers or with hand tools, so that it adhered in all places and was without wrinkles. He repeated this operation as many times as there were to be fabric layers in the casing. The impregnating composition, having the character of rubber, would also attach each two layers of the fabric together. The strip of fabric was cut upon the bias, and the warp threads therefore ran from the inner open edge of the tube in a diagonal course along, across and around the tube to the other open edge thereof, and the next layer of fabric put on was reversed so that these warp threads crossed those of the first layer at a selected angle. Where the ends of the fabric met each other, they were overlapped enough to make a pasted joint. Each layer of fabric was first pressed down and attached by the hand of the operator on its central portion throughout its length, thus constituting the part of the casing corresponding to the tread. The degree of lateral curvature here is slight, and there would be no difficulty in making a smooth attachment, but as it was continued around the remaining circumference of the cross-section, there would be an obvious tendency to gather and wrinkle. This wrinkling would be fatal to the strength of the casing and it could be avoided only by careful manipulation and gradual shaping. The ultimately smooth and unwrinkled surface could be had by virtue of a quality which all woven material has had since weaving was known; *i. e.*, that it will contract in one direction, as it stretches in another. When a fabric is stretched in one diagonal direction, its square meshes become diamond-shaped with the length of the diamond along the line of stretch and its width at right angles. This produces a contraction of the fabric in the line of its width. In tire building, it is primarily the central part of the strip which is thus stretched longitudinally as it is attached to the tread of the core, leaving the side portions or wings projecting

> and free. Upon the same principle, if these side portions are then stretched laterally, they will shrink longitudinally, and, if this stretching is done in progressive measure as the edges are approached, the longitudinal shrinkage will be greatest at the edge. In this way, it results that the fabric may be shaped smoothly and without wrinkles to the entire side core surface."

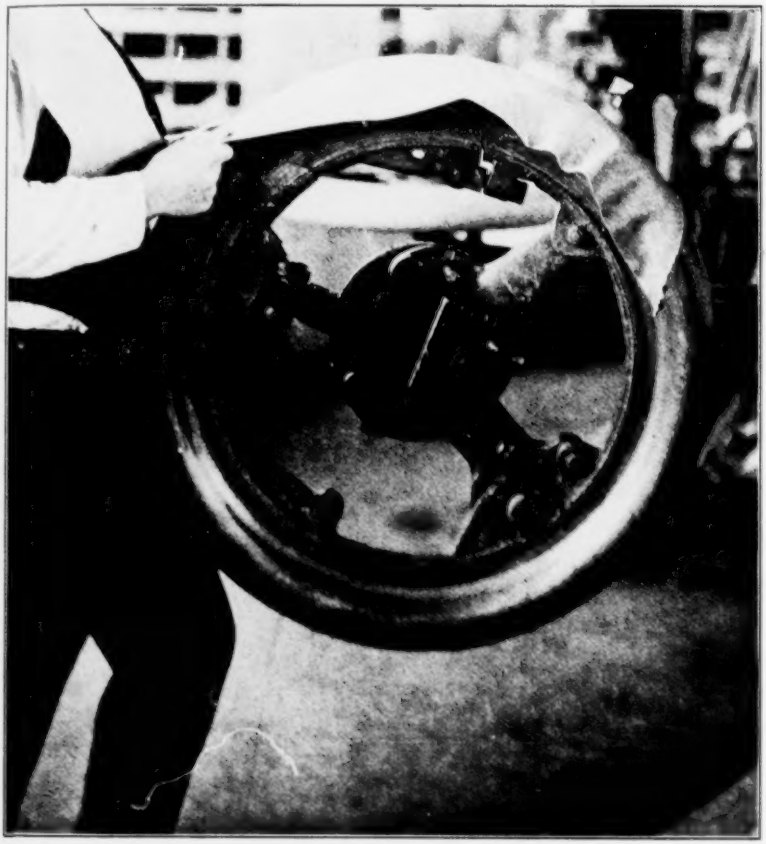
Other descriptions of the hand process are included in the testimony and referred to *infra*, page 89, *et seq.* The operation of stretching the fabric on the core is illustrated in the two adjacent half tones, the first one showing the workman initially stretching the fabric in a circumferential direction, and the second one showing the condition of the fabric after it has been circumferentially applied to the core.

In laying the skirts or edges of the fabric down smoothly on the sides of the core, the workman rotated it rapidly by hand (Vol. I, pp. 107, 117, 127, 137, 147, 153, 194, 286, 294). This rotation caused the loose skirts or edges to fly out under the influence of centrifugal force, until they stood substantially at a right angle to the plane of rotation (*id.*). About a dozen witnesses testified to this. Examples are as follows. Heller said (Vol. I, p. 117, Q. 21):

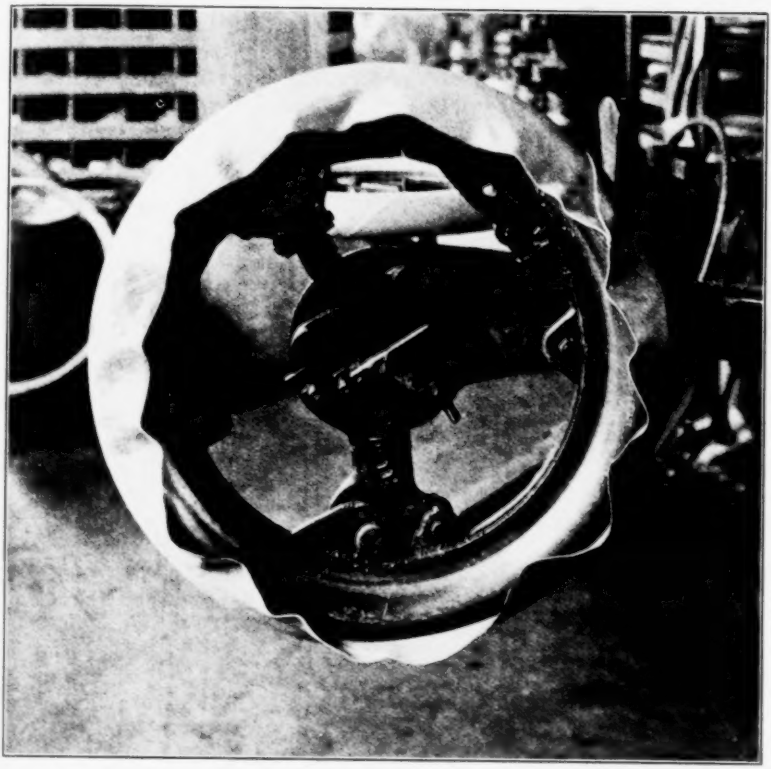
> "Q. 21. When the core was spinning fast, what position did the edges of the fabric take?
> "A. Straight out."

and Stark testified (p. 127, Q. 18):

> "Q. 18. When the core was spinning fast, what position would the edges of the fabric take?
> "A. Well, the faster you would spin the core, the fabric would stand out like this,—right out straight from the core."



Initial Stretching.

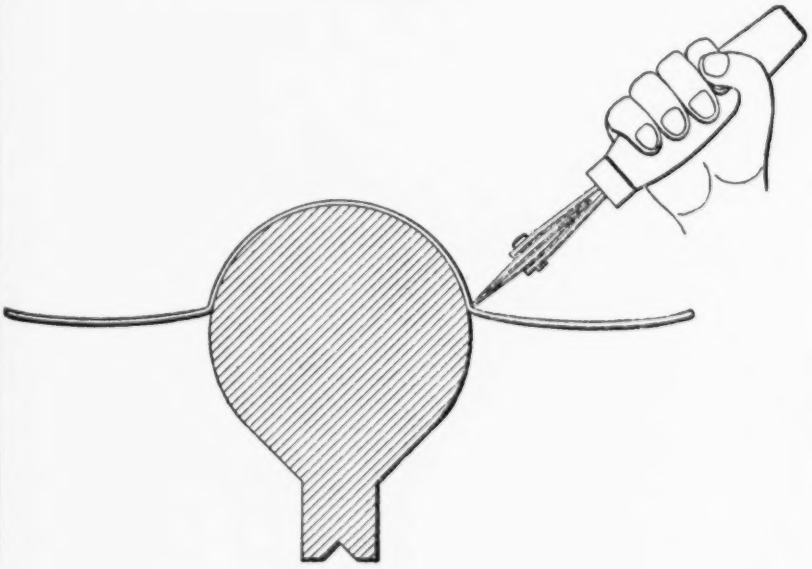


Fabric Circumferentially Stretched on Core.

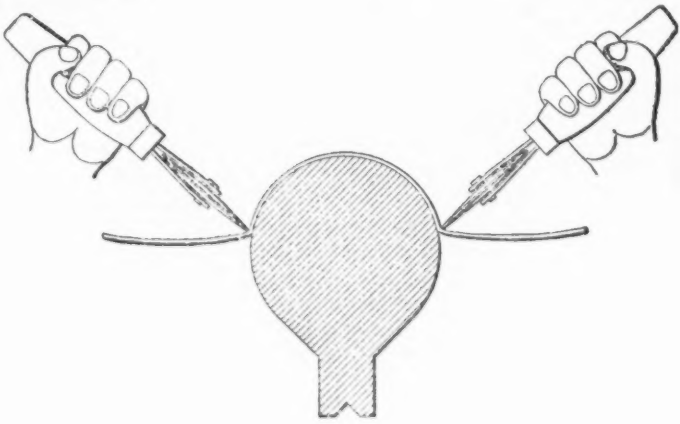
and Gregg said (p. 147, Q. 14):

> "Q. 14. When the core was spinning, what position did the edges of the fabric take?
> "A. Why, ordinary stand straight out, flare out."

The workman then took in his hand or hands a tool, commonly referred to as a "stitcher", or "spinning roll" which consisted of a steel disc two or three inches in diameter, rotatably mounted in a handle (*id.*). While the core was rotating at high speed, the workman placed the edge of this stitcher disc firmly against the fabric on the core at about the point where the fabric ceased to adhere, and pushed it slowly inwardly in a radial direction while holding it at a receding angle (about 45°) to the plane of rotation of core, as illustrated below where the core is shown in section (*id.*).



The result of this movement, in connection with the high speed rotation of the core, was such that the stitcher disc traversed a path consisting of close spirals on the side of the core, and thus gradually formed the skirt of the fabric smoothly thereon, the pressure of the tool and adhesive nature of the rubber compound causing the fabric to stick to the core. This operation was repeated on the other side of the core so that the entire strip was smoothly laid on and caused to adhere to the outer surface of the core (*id.*). If necessary, the workman gave the core an additional spin with his hand in order to cause it to retain its fast speed rotation throughout the operation, and some workmen would continuously rotate the core with the left hand while holding the stitcher tool in the right hand. Some workmen used two spinning rolls, one in each hand, so as to form the fabric on both sides of the core at once (Vol. I, p. 194). See cut.



And the core was, on occasion, rotated by a power belt (Vol. I, p. 148, p. 176).

The position taken by Plaintiff makes it unnecessary to describe the remaining operations in making the tires.

Upon the testimony in this case, the method just described was commonly followed in the hand building of tires prior and subsequent to the introduction of machines. It is called the "Hand Spinning Method". A very good general description of this practice is given by the president of the Hood Tire Co. (Vol. I, pp. 192-195). It is still employed at the Goodyear plant to supplement the operation of the State machines, because the latter only spin the fabric part way down on the sides of the core, leaving the last 30 or 40 per cent. of the operation to be performed by hand (Vol I, p. 234; Vol. II, p. 191, photograph).

State Patent in Suit.

(Vol. II, p. 1.)

The machine of this patent is described by Defendant's expert, Waterman (Vol. I, p. 212), but a brief review of the same here may be helpful.

Plaintiff says the product of this machine is the same kind as hand made tires (Vol. I, p. 395, Q. 59). The principal mechanical elements used are the same in both cases. Thus (referring to Fig. 2 of the patent drawings) the State patent shows a core 115 rotatably mounted on a stand 61. Rolls 147 are mounted in handles 140 to constitute tools like the hand stitchers already described. They are mounted on a part 131 which can be fed by screw operated by a hand wheel 124 inwardly along the side of the core, and are provided with springs

145 (Fig. 9) which press them laterally toward the sides of the core; thus simulating the hand operation of the tool. While the patent describes two spinning rolls arranged to operate on opposite sides of the core, all the claims in suit are limited to a single roll.

The mode of operation which Plaintiff's expert attributes to the State patent may be adopted for the present purposes (without conceding its accuracy) because it has been accepted by the court below (Vol. I, p. 39).

> "The machine of the State patent in suit is so organized and constructed that a previously unshaped, flat fabric strip from a supply or stockroll is uniformly stretched at its middle or tread portion upon a ring-core when rotating at the power-driven slow speed. After this middle or tread portion has been applied, the ring-core is rotated at high speed by the power-drive mechanism of the machine. During this high speed rotation, the fabric is shaped and applied to the ring-core beyond the tread portion at each side. The effect of the high speed of the ring-core is to throw out from its sides by centrifugal force the unapplied fabric portion. The forming- or spinning-rolls are carried by a support which is so mechanically mounted and fed as to ensure its radial movement with a gradual progressive advance in proper relation to the fast rotating ring-core. The forming- or spinning-rolls are pressed against the ring-core during such gradual radial advance, so that each spinning-roll acts gradually upon the centrifugally thrown-out fabric, thereby shaping it to the side of the rotating ring-core while bringing the fabric into adhesive contact therewith."

Apparently no machine like the patent in suit has ever been built, although the Plaintiff has ap-

proximated that in his Exhibit 2. His expert says that this exhibit is an operative and satisfactory machine, but although repeatedly requested on the record to do so, *Plaintiff's counsel refused to operate this machine in the presence of defendant's counsel and expert* so that testimony could be given on behalf of Defendant with respect thereto (Vol. I, p. 172; pp. 501-503). Apparently counsel for Plaintiff realized that this was unusual, for he stated that the "sole reason" for not exhibiting this machine in operation was the inability to obtain the proper power in the loft where it was located in Barclay Street, New York City. This also is a very unusual excuse, but we need not dwell upon it since Plaintiff's second expert, Ray, produced and put in evidence three tires which he says were made on the said machine, while it was in the loft in Barclay Street and driven by the electric power there (Vol. I, p. 582, xQs. 232, 236). This matter cannot be emphasized too strongly because, throughout Plaintiff's brief below, this machine was referred to in the most laudatory terms (*e. g.*, p. 44), where it was called "one of the most remarkable commercial machines of modern times". This and many other similar statements in the brief are unfounded in fact. We do not credit for a moment the assertion that commercial tires had been made upon this machine, except when it was in a greatly altered condition so as to correspond with the so-called Goodyear commercial machines, and feel that there could be no greater support for our contention than Plaintiff's repeated refusal to operate this machine in the presence of Defendant's representatives. Shaw, who was said to have operated the machine for Plaintiff's expert, did not testify (Vol. I, p. 582). The model produced by Plaintiff

is not a reproduction of the machine of the patent in suit.

A large number of machines have been manufactured and leased by Plaintiff, and have gone into extensive use because of their rapid operation although their work is far from perfect. But these are not the machines of the State patent (Vol. I, p. 230). The differences need not be all rehearsed here, but it should be said that the low and high speeds of rotation of the core are 8 and 120 instead of 6 and 207 required by the patent (Vol. I, p. 231); the lateral pressure on the spinning rolls is substantially wholly manual instead of spring (Vol. I, 232); and the fabric is shaped to the tread portion of the core by the original circumferential stretching instead of by the tread forming roll 141 of the patent (Vol. I, pp. 230, 231). See *infra*, p. 73 *et seq.* As shown by Plaintiff's Exhibit photographs (Vol. II, pp. 189, 191) and by Waterman's testimony (Vol. I, pp. 232, 233) the machines do not have the tread roll, bead applying rolls, and trimming mechanism mounted on the turn table slide, as shown and described in the patent. The tread roll is mounted below the slide and arranged to be operated by a foot treadle so that it can be used simultaneously with the spinning rolls. A large part of the fabric is spun down by hand. The beads are applied by bead placing rings as shown in Defendant's patent (Vol. II, p. 36), and the trimming is done by hand. These machines which were leased also embody features covered by important claims of the patent (*e. g.*, 1, 2 and 3) which are not in issue, and the validity of which has never been disputed. The structure and mode of operation of the commercial machines are strikingly different from the patent.

Further than this, the machine shown and described in the patent in suit is actually inoperative, as explained by Defendant's mechanical engineer witness, Waterman (Vol. I, pp. 215-222). Plaintiff realized this difficulty and went into the same on his *prima facie* case, calling a second expert, Ray, in support of his chief expert Browne (Vol. I, p. 87 *et seq.*). He further occupied pages 543 to 561 of Volume I of the Record and pages 158 to 190 of the Exhibit Book (Vol. II) with testimony and exhibits supplementing the disclosure of the patent in suit in the effort to remedy its deficiencies and mechanical inaccuracies. This emphasizes the work which had to be done in addition to the disclosures of the patent, before any commercial success whatever could be attained.

Plaintiff testified that the commercial machines still embody his so-called "State combination", even though changes have been made. He said that they still included the advancing table or slide, the arms mounted thereon, the stitching (spinning) rolls on the arms, means for imparting lateral pressure to the arms, means to cause the rolls to traverse the core radially, high and low speed devices and speed changing mechanism (Vol. I, p. 398, Qs. 91-93). But this combination of elements has been unqualifiedly cancelled from the patent by the Disclaimer, as forming *no part of State's invention* (see *infra*). There is not a word in this testimony of Plaintiff to show that the commercial machines include the limitations attached to the claims of the State patent by the Disclaimer. Hence, these machines are not covered by the State patent as it stands, and can be of no effect in supporting its validity (Vol. I, p. 412, Rd-Qs. 201, 202).

In view of the foregoing, there is no proper basis

for Judge Buffington's repeated references to the commercial success of the patented machine, and there is no force to the evidence by Plaintiff that he has continued old leases or issued new ones (both on a modified basis since January, 1919), because these agreements, Plaintiff's Exhibit 16, make no reference to the Disclaimer, and there is nothing to show that this Disclaimer was ever brought to the attention of any of these parties, or that any of these agreements were executed after the Disclaimer. Furthermore, they include the Seiberling & Stevens patent, as well as the State (Vol. I, p. 404). Commercial success can have no weight in support of validity except when it relates to the very machine of the patent as distinguished from some modified structure. *De Mayo* v. *Michener*, 231 F. R. 736, 737 (C. C. A., 2); *Johnson* v. *Lambert*, 234 F. R. 886, 889 (C. C. A., 2); *Winton* v. *Lindsay*, 239 F. R. 521, 526, 527 (C. C. A., 6); *Fielding* v. *Crouse*, 154 F. R. 377 (C. C. A., 2).

It is difficult to understand why Plaintiff lays so much stress on commercial success, and why this has also been adopted by Judge Buffington, who says that the public would not have acquiesced in the patent unless they believed it to be valid (Vol. II, p. 413). Assuming this to be so, what weight can this belief have when it is now formally admitted by the Disclaimer that the patent was void and the belief, therefore, unfounded?

Specification of Errors.

The Writ of Certiorari brings up the entire decision below for review and the alleged errors include failure to sustain any of the defenses listed below and hereafter discussed.

Defenses.

The Answer raises all the customary defenses, but those which are mainly relied upon are the following:

1. Anticipation of the *method* of State patent by hand spinning (*supra*, pp. 2-7 and *infra*, 87-104).

2. Anticipation of both apparatus and method of State patent by the Belgian and other prior patents (*infra*, pp. 19-34 and 106-136).

3. No invention in operating a known machine as in hand spinning (*infra*, pp. 43-49).

4. Invalidation of State patent by the Disclaimer (*infra*, pp. 53-87).

5. Invalidation of State patent because State was not the sole inventor (*infra*, pp. 138-144).

6. Non-infringement (*infra*, pp. 145-157).

Of the above defenses there are two which could not be raised on the Record in the Sixth Circuit case, hereinafter called the *Firestone* case; to wit: the invalidating of the patent by the Disclaimer filed since the decision in the *Firestone* case, and that State was not the sole inventor of this patent. Inasmuch as Plaintiff no longer relies for novelty upon the mechanical structure recited in the claims, it is unnecessary to take up the defense of aggregation.

In order to avoid any misunderstanding, it should be stated at the outset that Defendant does not contend that a patent cannot be granted for a machine which carries out a method or process previously followed by hand. Indeed, some of the

most valuable patents are in this class (*Hildreth* v. *Mastoras*, 257 U. S. 27). But, in such cases, the patentable invention must reside in the machine itself, not in the method it follows. As said by this Court, in the cited case:

> "The ultimate effect of this step with the *mechanical or patentable* improvements of his device was to make candy-pulling more sanitary, to reduce its cost to one-tenth of what it had been before him, and to enlarge the field of the art." (Italics ours.)

What we do contend is that a machine patent which is anticipated by another machine patent, cannot be validated by construing it as for a method when that method was previously performed by hand. In the first place, it is unlawful so to construe a patent; and in the second place, the method itself is old, since a method is the same whether it be followed by hand or by machine.

Brief History of the Sixth Circuit Case.

In 1914, Plaintiff filed Bill of Complaint against Firestone Tire & Rubber Co. (in Ohio), charging infringement of claims 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 17, 22, 23, 24, 25 and 26 of said State patent, and of claims 1, 2 and 14 of a Seiberling & Stevens patent, No. 762,561, June 14, 1904. The *Firestone* case was tried before Judge Killits. He found all the said claims of both patents to be valid and infringed (234 F. R. 370). Firestone appealed to the Court of Appeals for the Sixth Circuit and the case was argued in that Court (Warrington, Knappen and Denison, *JJ.*). While the Court had it under consideration, Firestone discovered an important prior patent which had not been presented to Judge

Killits. This was a Belgian patent to Matherne, dated September 20, 1906. Motion to reopen to permit proofs with respect to the Belgian patent was granted, and the Court of Appeals ordered the case remanded to the District Court unless the parties otherwise disposed of the matter by stipulation (245 F. R. 937). Thereupon a stipulation was made and approved by the Court of Appeals, by which the Belgian patent and explanatory affidavits were incorporated in the record before that Court. The case was re-argued, and a decision was rendered on December 13, 1918, in which all the said claims of the State patent and claims 2 and 14 of the Seiberling & Stevens patent were held invalid, while claim 1 of the latter patent was held not infringed. The opinion is printed as an appendix hereto.

The Court of Appeals recognized that Plaintiff really presented his case on the theory that State had discovered a new *method* of making tires and, in order to make its decision in the *Firestone* case comprehensive, that Court considered the State patent as if it were for a method, and held that it was anticipated by the identical method previously performed by hand.

The Court further found that the Belgian patent, under any reasonable theory of its operation, disclosed this same spinning method.

It was also held that the machine of the Seiberling & Stevens patent had been used for a similar spinning operation in making tires before State's invention; and that a Moore patent showed essentially the same operation. Therefore, the Court came to the conclusion that

> "State cannot be considered as the inventor of the method" (257 F. R. 84).

Plaintiff made no attempt to attack this decision of the Sixth Court of Appeals. He filed no Petition for Rehearing and no Petition for Certiorari. In fact, he acquiesced in the decision and sought to avoid it by Disclaimer.

Brief History of the Third Circuit Case.

The Bill in the present case was also filed in 1914, but in the District of New Jersey. After the decision in the Sixth Circuit (Dec. 13, 1918), Plaintiff filed in the Patent Office (Feb. 15, 1919) a Disclaimer with respect to the State patent, whereby he sought to change it from a machine patent to a method patent; and the case then went to proofs. The case was fully heard by Judge Bodine and he, in a memorandum opinion (Vol. II, p. 399), found that the method or process which the Disclaimer had read into the patent was the same as that which the proofs showed had, for many years prior to State's patent, been used in making tires by hand. The District Court also noted the fact that the Sixth Circuit Court of Appeals had considered the State patent as though before it in its present aspect, *i. e.*, as changed by the Disclaimer. Having found that the method read into the patent by the Disclaimer was old, and that the Sixth Court of Appeals had come to the same conclusion, and, after citing *Conroy* v. *Penn.*, 155 F. R. 421 (Aff. 159 F. R. 943), to show that a machine patent cannot be sustained as for a method when that method was old in hand work, Judge Bodine found that it was unnecessary to pursue the many other grounds urged for the invalidity of the patent.

On appeal, the majority of the Court below held that the State patent disclosed a new method or "process" which was "wholly different from the original hand process"; that the Belgian patent disclosed "a procedure wholly different from State"; that the machine of the Seiberling & Stevens patent was "of wholly different type" from the machine of the patent in suit; and it failed to mention the Moore patent. The majority of the Court also held the Disclaimer to be valid and proper under the Statute. (Vol. II, p. 403.)

Judge Buffington's statement that the record in the Third Circuit was "substantially different" from that in the Sixth Circuit should be considered in the light of the fact that the Sixth Circuit record was not presented to the Third Circuit Court, so that there was no opportunity for comparison. Actually, Plaintiff's contentions were the same in both cases.

In the dissenting opinion (Vol. II, p. 415), Judge Davis found that the Sixth Circuit Court of Appeals had held that there was nothing new in the method attributed to the State patent. He held that the Disclaimer set forth a method of operation which was a disinct addition to the claims and that, to a certain extent, the character of the patent was changed by it to a method patent. He held that this could not be done by Disclaimer and that the patent was invalid.

Plaintiff's Change of Front.

In the *Firestone* case, Plaintiff laid stress upon his Seiberling & Stevens patent of June 14, 1904. His brief (p. 5) said it "worked industrial revolution"; it was asserted to be the first satisfactory machine for performing certain functions, and, it was emphasized that the brief use of that machine was due to financial reasons alone.

Judge Killits adopted this contention and praised the Seiberling & Stevens patent, stating that he had seen an exact reproduction of the same in operation, considered testimony as to the product thereof in practical use, and that the patent "was decidedly an advance step in the art and so far occupied the field that it anticipated, in a large measure", the State invention (234 F. R. 371).

The Court of Appeals for the Sixth Circuit, while not giving such approval to the Seiberling & Stevens patent, sustained one of its claims; said that it was a machine "of the same general type as State's" (257 F. R. 80), and explained how it largely anticipated the State patent (257 F. R. 83).

When, after the decision in the *Firestone* case, Plaintiff proceeded against Defendant in the case at bar, the Seiberling & Stevens patent had come near to the end of its term, so that it seemed expedient for Plaintiff to rest his case most heavily upon the State patent, which would not expire until five years later. In carrying out this plan, Plaintiff abandoned any efforts to obtain a decree in this suit under the Seiberling & Stevens patent (Vol. I, p. 91), and transferred all his praise to the State patent, asserting that it was the

first machine to do the very things which he had, in the *Firestone* case, asserted the Seiberling & Stevens machine had done four or five years previously; and maintaining that the efforts to use the Seiberling & Stevens machine "had signally failed" (Brief below, p. 43). Of course, Plaintiff could not personally contradict his testimony in the *Firestone* case, but he supported this strategem by eliminating from his testimony all reference to his Seiberling & Stevens patent or machine which he had praised in his testimony in the *Firestone* case; and by having State refrain from mentioning his own patent when testifying in this case. This effectively shut off any cross examination of Seiberling with respect to the Seiberling & Stevens patent and any cross-examination of State with respect to the State patent. A further step was to have State testify in the case at bar that the Seiberling & Stevens machine was no good, while Seiberling praised the State machine. Plaintiff carried this plan so far that there is not a word in State's entire deposition to show that he is the State named in the patent. The leading and calculated form of the introductory question put to State is significant (Vol. I, p. 303):

> "Q. You are the originator of the Goodyear commercial machine for the manufacture of fabric carcasses for tires, are you not?
> A. I am."

The positions taken by Plaintiff in the two cases cannot both be true, and we should suppose that such inconsistencies with respect to fundamental facts lying particularly within the breasts of Plaintiff and his witness would discourage the giving of

full credit to the uncorroborated testimony of Seiberling and State in the present Record.

In the following pages we shall endeavor to show that the views of the Court of Appeals for the Sixth Circuit, of Judge Bodine, and of Judge Davis were correct, and that those of the majority of the Court below were erroneous.

At the outset it should be noted that the Court of Appeals for the Sixth Circuit saw the machines in operation; *i. e.*, the machine which Plaintiff contended represented the State patent; the machine which Plaintiff contended represented the Seiberling & Stevens patent; the machine which represented the Belgian patent; the machine which represented the Moore patent, and the apparatus used in the previous hand making of tires. We emphasize this point because the Court of Appeals for the Third Circuit did not have a demonstration of any of these machines or methods.

Brief Recital of Prior Art.

It may be of assistance at this juncture briefly to recite the main developments in the art prior to State.

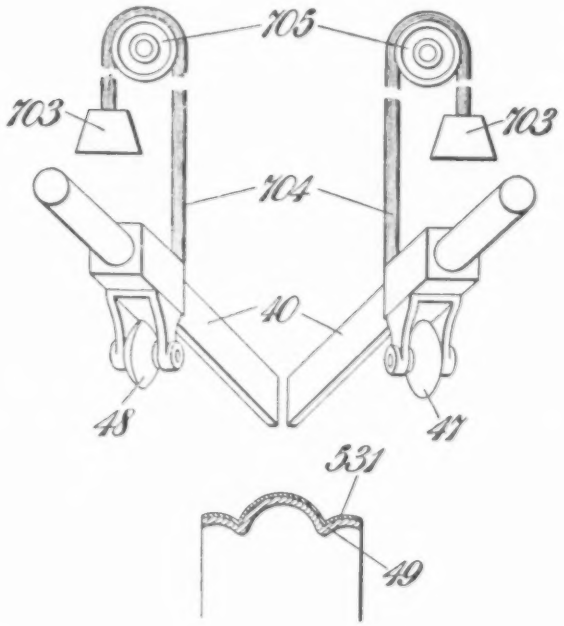
The hand spinning method has already been described so that it need not be repeated.

Turning to machines disclosed in prior patents, we find that an early entrant in the field was the

Moore Patent of 1894.*

(Vol. II, p. 273.)

The following cut represents, somewhat diagrammatically, the pertinent portions of this apparatus, with the core shown in section.



The core 49 was arranged so as to be expanded and contracted. The fabric 531 was placed upon the core in the form of an endless band while the core was contracted, and the latter was then expanded so as to circumferentially stretch the fabric. After this operation, the fabric was smoothed and stretched by a series of rollers, two of which are

* For more complete discussion see page 135 *et seq.*

shown, the one marked 47 being a spinning roller, and the one marked 48 being a creasing roller.

Each of these rollers is mounted on a lever 40 which is freely pivoted at its rear end and has a handle at its forward end so that it may be grasped by the operator and pulled downwardly in order to cause the roller it carries to pass along in contact with the fabric on the core, by a combination of radial and lateral movements. The patent says:

> "The described mode of connecting the levers with their support enables the said levers to be moved freely up and down as required, and to be slid laterally as may be desired in order to bring the required one thereof over the working points on the expansible former [core]." (Vol. II, p. 280, line 76.)

The weights 703 attached to cords 704 that pass over pulleys 705 and are also fixed to the levers 40, serve to hold the levers and rollers out of the way when not in use.

During the operation of these rollers, the patent says:

> "the rotation [of the core] is kept up at a *high rate of speed*" (Vol II, p. 281, line 73),

and that the rollers 47 and 48 are

> "successively brought into action, smoothing and *stretching the said wings* [of fabric] into proper position and condition, the narrow roller [48] working into the angles of the shell [core]." (Vol. II, p. 282, line 24.)

The specification of the patent also says that the core

> "may be of any other desired and approved shape" (Vol. II, p. 280, line 106).

The patent is fully described by Defendant's expert, Waterman, beginning Vol. I, p. 257.

In the *Firestone* case the Court of Appeals said (257 F. R., at p. 83):

> "The Moore patent shows what is, essentially, a spinning roll for operating against a revolving core in making a tire casing. It was intended to and did smooth down the Moore tire from the center of the tread only part way, and not much further than may be done by the typical tread-forming roll; but the operation is substantially spinning, as far as it goes, and involves, in some degree, the characteristic relocation of the threads of the fabric, even though it may only put them back where they were before the casing was distorted by placing it on the core. In the Moore patent, the handle of the spinning roll was so attached to its frame that the roller could not effectively travel radially of its core down as far as the bead, but if its attaching staple is made larger, the whole tire can be formed thereby *as demonstrated*." (Italics ours.)

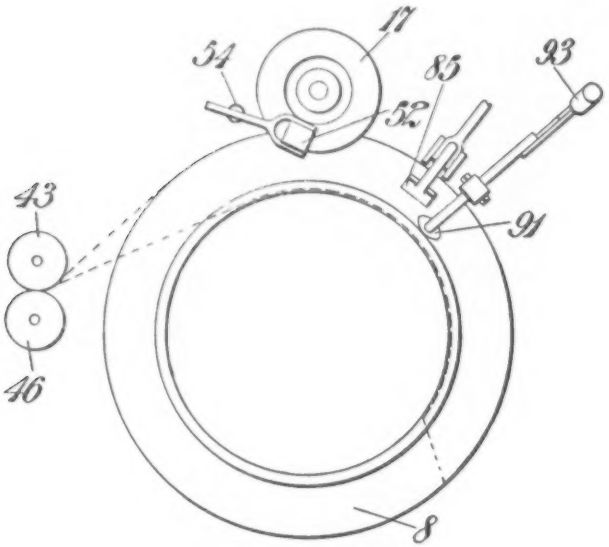
This patent has become very pertinent in the present case because of Plaintiff's contention that the Disclaimer (discussed *infra*) has changed the claims in suit so as simply to cover combinations of a high speed core and a spinning roll. Moore unquestionably shows this combination, and he not only describes the high speed of the core but he expressly refers to the action of the spinning rolls as *stretching* the wings or edges or skirts of the fabric into proper position and condition.

Seiberling & Stevens Patent of 1904.*

(VOL. II, p. 257.)

This is one of the two patents originally in suit and Plaintiff was one of the co-inventors. It was strongly relied upon by Plaintiff in the *Firestone* case, and one of its claims there sustained, but Plaintiff has not made a *prima facie* case upon it in the present suit.

The pertinent parts are fairly represented in the following cut.



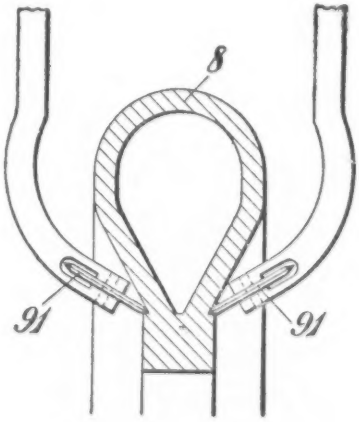
The core is marked 8, and is arranged to be rotated at high and low speeds by frictional contact with the power driven tread forming roll 17. The fabric, shown in dotted lines, is led from between stretching rolls 43 and 46, that are squeezed to-

* For more complete discussion see page 126 *et seq.*

gether like the rolls of a clothes wringer, in order to resist the movement of the fabric and thereby stretch it circumferentially as it is drawn onto the core during slow speed rotation. The tread portion is shaped by the roll 17, and the upper side portions by rollers 52, one on each side, which are drawn toward each other by a spring 54 and thus press firmly against the fabric on the core the edges of the tread roll 17, which are somewhat flexible.

The main side portions of the fabric are smoothed down on the core by jigger fingers 85 that are arranged to rapidly reciprocate in a radial direction and to be pressed laterally against the fabric on the core during the inward portion only of each reciprocatory movement. The patent says that these fingers "smooth out the wrinkles" (Vol. II, p. 268, line 126).

The extreme edges of the fabric are shaped to the core by a pair of stitching rollers 91, which are mounted so as to be moved radially and pressed laterally against the fabric on the core by the operator seizing the handle 93. These stitching rollers are well shown in the following cut,



and it will be observed that they are mounted on arms and at a receding angle to the plane of the core, as described in the State patent. The pertinency of this part of the Seiberling & Stevens construction is emphasized by the fact that, in this suit, Plaintiff has charged that the forming rolls in Defendant's machine infringe a claim directed to these stitching rolls of Seiberling & Stevens and also infringe the claims of the State patent in suit.

Defendant's expert Waterman describes this patent beginning at the bottom of page 255 of Volume I.

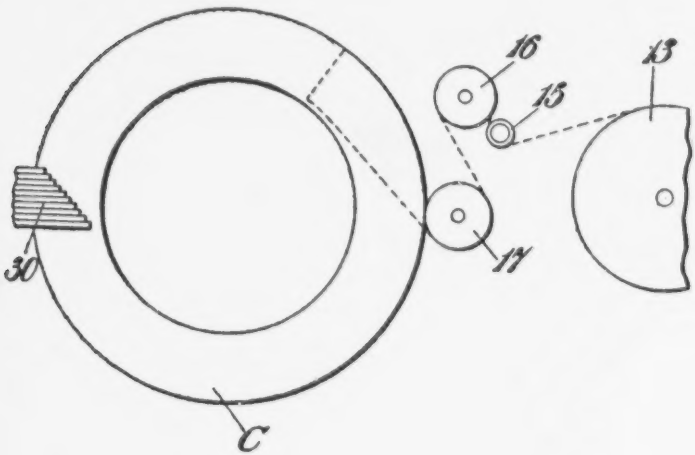
The Court of Appeals said in the *Firestone* case (257 F. R. 83):

> "The Seiberling and Stevens patent shows what it calls creasing or stitching rollers. Each one is undoubtedly an effective spinning tool and capable of use as such; their edges, as shown, may be sharp enough to cause some danger of cutting the fabric, but the spinning would be done by the side bevels, not by the extreme edge; and plaintiff's theory that defendant's spinning roll is so far the equivalent of the Seiberling and Stevens stitching rolls as to make out infringement of the claim based thereon goes far to persuade that they are, in a broad sense, an anticipation of State's spinning roll. There seems no sufficient reason to doubt that Stevens used them for spinning in 1903 or 1904."

Vincent Patent of 1905.*

(VOL. II, p. 245.)

The machine of this patent was in commercial use, both here and abroad, before State's (Vol. I, p. 187 *et seq;* pp. 388, 389). The following cut represents the important parts.



The core is marked C. There is a fabric supply roll 13 and guide rolls 15, 16 and 17 through which the fabric, shown in dotted lines, is led on its way to the core. These rolls are geared so as to resist the movement of the fabric, and the core is power driven in order to draw the fabric from the rolls and stretch it.

After the fabric has been stretched circumferentially on the core, its skirts or edges are formed down on to the sides by two sets of spring actuated hammers 30 which are arranged progressively in a

* For more complete discussion see page 130 *et seq.*

radial direction so that, as the core rotates, the fabric is tapped on to the sides thereof, the operation beginning at the outer portion of the side and extending progressively inward to the bead.

The patentee says that the machine is adapted

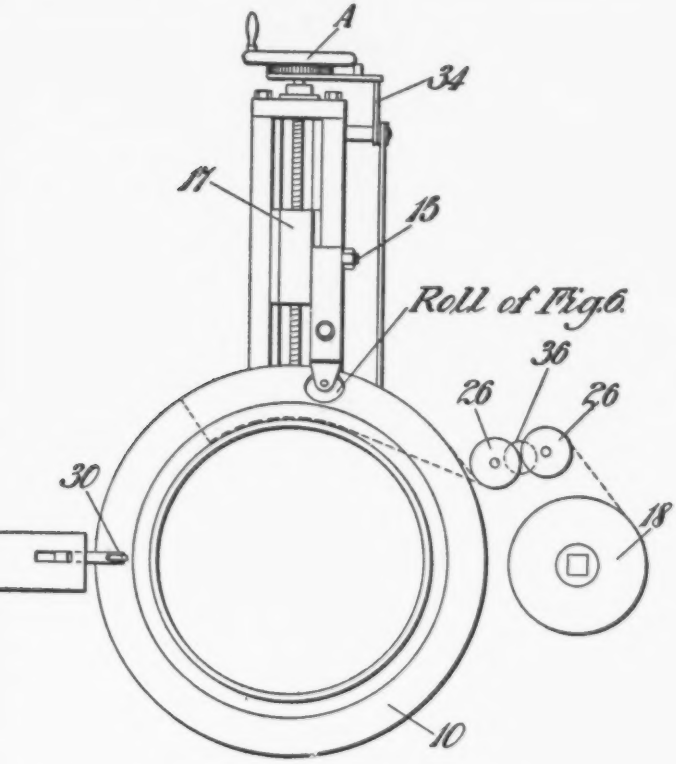
> "to shape and *stretch* the canvas layers exactly to the same amount whatever be their number, so as to permit the different elements of the tire to work equally" (Vol. II, p. 253, line 17).

When the State patent was pending as an application, claims corresponding to those in suit were rejected by the Patent Office upon this prior Vincent patent (Vol. II, p. 365), and the claims were only allowed and the patent granted because both State and Seiberling filed affidavits in the Patent Office to the effect that the Vicent machine had been tried and proved unsatisfactory (Vol. II, pp. 385, 389). These affidavits were not true, as is shown by the testimony of Raymond (Vol. I, p. 187); and the cross-examination of Seiberling (Vol. I, pp. 388, 401). The fact was that this Vincent machine had been in large and successful use by the B. F. Goodrich Company, and that Seiberling himself had found the same in use at the Pirelli plant in Italy, and had advocated that the Goodyear Company negotiate for United States rights.

Matherne Belgian Patent of 1906.*

(VOL. II, pp. 217-227.)

The main parts of this patent are shown in the following cut.



The core is marked 10 and is arranged to be power driven at both high and low speeds, the variations being effected by changing gears, as in the State patent, and the ratio of high speed and low being

* For more complete discussion see page 106 *et seq.*

about 20 to 1, which is intermediate that described in the State patent and that used by Defendant (Vol. I, pp. 245, 231, 277).

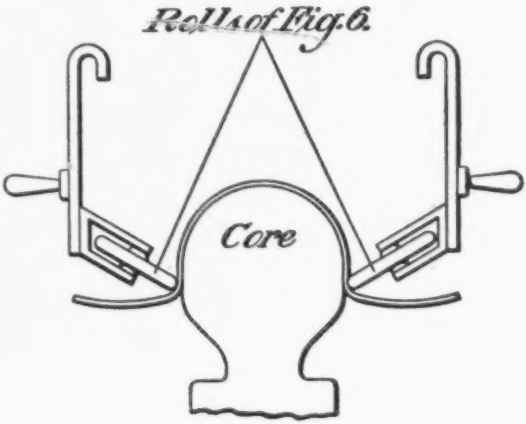
The stock roll for the fabric is represented by 18 and its rotation is resisted by a band brake (shown in Fig. 2 of the patent) so that the fabric, shown in dotted lines, will be stretched as it is drawn onto the core. The guide rolls are 26, and the fabric is passed around them on its way from the stock roll to the core. A pair of conical gears 36 are combined with the guide rolls in the effort to insure that the puckers formed in the edges of the fabric as it is stretched circumferentially on the core will be uniform (Vol. I, p. 247). These gears also necessarily serve to hold the fabric edges out laterally so that they cannot accidentally stick to the sides of the core while the fabric is being drawn thereon.

A pair of rollers 30 are arranged to be reciprocated on the sides of the core to stick the fabric at the central side portions.

A screw fed slide 17 is arranged to be moved radially of the core by the hand wheel A, (as in the State patent) or automatically (as in Defendant's machine) by the mechanism 34.

A pair of spinning rolls marked Fig. 6 are carried on pins 15 which project from the sliding carriage 17, whereby the spinning rolls will be fed radially of the core as the carriage 17 is moved by its screw, just as in the State patent. The handles on the spinning roll arms enable the operator to press them laterally against the fabric on the core during their inward radial movement, as is customary in the operation of the Goodyear (State) commercial machines, as well as in other commercial tire making machines (Vol. I, pp. 232, 134,

169). This operation is represented in the following cut.



It is perfectly feasible to omit the use of the reciprocating rollers 30, just as State can omit the use of his tread roller 141 (Vol. I, p. 513), and let the spinning rolls Fig. 6 apply the entire side edges or skirts of the fabric after it has been circumferentially stretched on to the core (Vol. I, p. 280). After describing how the fabric is originally stretched on at low core speed, the Belgian patent says (Vol. II, p. 220):

> "Then the speed of the machine is changed by clutching the cone 3 to the shaft 11 and moving aside the gears 5 and 6. On the support 17, which constitutes a tool carrier, there is mounted a tool like that shown in Fig. 6, which has a fork with a rounded roller set at an angle. The sliding tool carrier 17 is adjusted so that the roller comes to the level of the top of the core. Then the machine is set in operation and the roller is caused to descend progressively on the side of the core and all the way down to its base. Thus there

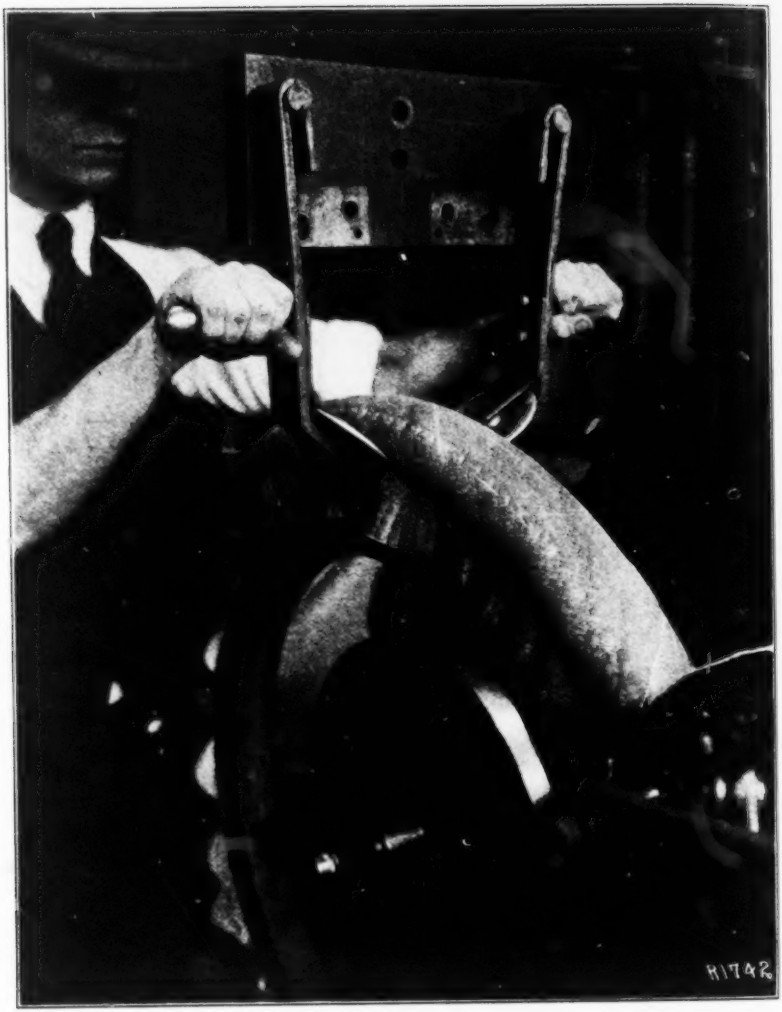
> is obtained the complete and rapid removal from the fabric of the puckers, the descending motion being produced automatically by the pawl 34. Both sides may be readily worked at the same time, by mounting two tools like that shown in Fig. 6 on the sliding tool carrier 17."

And again he refers to this operation as (Vol. II, p. 221).

> "the principle of the roller descending progressively on the core during rapid rotation and producing a progressive removal from the fabric of the puckers by eliminating the puckers from the point of their origin, this being performed in a single descending movement."

Defendant's expert Waterman testified as follows (Vol. I, p. 252):

> "A. In my opinion it [the Belgian patent] discloses exactly the mode of operation practiced with the Goodyear [State] machines. Thus in both the fabric is stretched into partial conformation with the core and the tread portion rolled into intimate contact therewith. In each the fabric is pressed against the core by heavy pressure applied to the spinning roll and is thereby conformed and stuck to the core. The only difference is that the Belgian patent automatically feeds the spinning roll radially inward while the Goodyear machines were hand fed.
>
> "Q. 33. Does this Belgian patent disclose an open tire shoe making machine which has a power driven ring core, a radially moving support, and a spinning roll mounted on the support for passing radially along the sides of the tire shoe to shape the sheeted fabric on the core?
>
> "A. Yes.
>
> "Q. 34. Does it show the spinning roll as mounted at a receding angle to the plane of the core?



Photograph No. 10

"A. It does.

"Q. 35. Does it show the spinning roll as having a rounded disk shaped working edge?

"A. It does.

"Q. 36. Does it show a pair of such spinning rolls so mounted for simultaneous operation on both sides of the tire?

"A. Yes.

"Q. 37. Does it make provision for yieldingly forcing these spinning rolls laterally toward the core?

"A. Yes, the spinning rolls are pivoted to swing to and from the core and provided with handles for yieldingly pressing the spinning rolls against the core. These handles are shown in Fig. 6 placed down close to the spinning wheel so as to give a large leverage and enable a heavy pressure to be exerted.

"Q. 28. Does it show slow speed mechanism for actuating the core when receiving fabric from the stock roll?

"A. It does and expressly describes it for this purpose.

"Q. 39. Does it show fast speed mechanism for actuating the ring core during the operation of the spinning roll?

"A. It does and describes it for this purpose.

"Q. 40. Does it show speed changing mechanism for changing from the low speed to the high speed and the opposite?

"A. It does.

"Q. 41. Is the radially moving support which carries the spinning roll, in the Belgian patent, a radially sliding support?

"A. Yes, it is carried on a slide moving in guideways and is fed by a screw, as in the State patent, but in the Belgian machine the screw is fed automatically."

The sameness of the machine of the patent in suit and of the Belgian patent is well shown by reference to the opposite picture of the Belgian

machine in evidence (which has not been criticized as failing to be an exact embodiment of the patent) and the picture of one of the State commercial machines put in evidence by Plaintiff (Vol. II, p. 191).

This Belgian machine unquestionably infringes even the more limited of the claims in suit, considered as claims for a machine. Take, for instance, claim 12 which calls for

> a stock roll for carrying a strip of sheet fabric
>
> a ring core
>
> a slow speed mechanism for actuating the core when receiving fabric from the stock roll.
>
> a radially moving spinning roll for passing radially over the side of the tire shoe to shape the fabric on the core
>
> fast speed mechanism for actuating the ring core during the operation of the spinning roll
>
> speed changing mechanism.

Every one of these elements is shown and described in the Belgian patent. Therefore, the long established doctrine that that which infringes if later anticipates if earlier is applicable. In *Knapp* v. *Morss*, 150 U. S. 221, 227, this Court said:

> "the rule is well established that 'that which infringes, if later, would anticipate if earlier'."

To the same effect are *Miller* v. *Eagle*, 151 U. S. 186; *Peters* v. *Active*, 129 U. S. 530; *Thatcher* v. *Burtis*, 121 U. S. 286; *Grant* v. *Walter*, 148 U. S. 547; *Gordon* v. *Warder*, 150 U. S. 47.

This immediate proximity of the prior art requires that the State patent be

construed with strictness, rather than liberality; and discloses why Plaintiff has been forced to endeavor to have his machine patent construed as for a method, and even to file an elaborate Disclaimer in the effort to establish a basis for arguing validity.

Controlling Point of Difference Between Third and Sixth Circuits.

Judge Buffington's opinion assimilates the State method to the hand method down to a certain point. He says (Vol. II, p. 408):

> "He [State] continued that process just as it had been in the hand process, down to the point where he plastered or cemented the fabric on to the core down to the median line point."

From this point on Judge Buffington asserts a difference which is in conflict with the Sixth Circuit decision and which has no foundation whatsoever in the proofs or in the laws of physics. Judge Buffington's statement of this distinction is as follows (*id.*):

> "But here he [State] changed to something the old hand process had never used, namely, the machine was *speeded up* to a point where the revolution of the wheel and flying skirt of the uncemented loose fabric *stretched itself radially* and thereby formed radial, diamond-shaped interstices, which contracted the normal length of the fabric. At this point we note that State made use of a shifting platform, on which he mounted on each side of the tire spinning wheels or rolls so pressed inwardly by springs that as the rolls revolved they engaged and pushed inward and against the sides of the core the *stretched* flying skirts of the fabric. Thereby he then, and by the wheels, pressed and cemented the *radially stretched*

> *and therefore puckerless fabric* against the lessening sides of the shoe clear down to the bead edge. It will therefore be seen that the essence of his disclosure was the rapid, sustained, regular revolution of his core, the use of a shifting platform on which he located his spinning rolls, and the constant regular and uniform exertion of pressure upon those spinning rolls, causing them to automatically press the *automatically stretched and loose fabric*, or skirts, in an *unwrinkled state*, on the bead of the lower surface of the core." (Italics ours.)

Judge Buffington here asserted differences between the State mode of operation and the hand operation in direct opposition to the statement of the Sixth Court of Appeals (257 F. R. 83), quoted below. The Sixth Circuit was correct in finding no difference between these two modes of operation and Judge Buffington was wrong in holding the contrary.

The points of difference in mode of operation which Judge Buffington asserts are as follows:

> 1. That State "speeded up" the core as compared with the speed in hand operation. We will later show that this is unsupported by and contrary to the proofs (*infra*, p. 99).
>
> 2. That the "speeded up" core produced so much centrifugal force that the loose fabric "stretched itself radially". We will show later that this is unsupported by and contrary to the proof, as well as contrary to the laws of physics (*infra*, pp. 93-98).
>
> 3. That the "spinning wheels" acted upon fabric which was "radially stretched and therefore puckerless". We will show later that this is unsupported by and contrary to the proof (*infra*, p. 125).

If we show that Judge Buffington was wrong in all three of the above suppositions and that the Sixth Circuit was right, it will totally undermine Judge Buffington's disagreement with the Sixth Circuit, and will re-establish the fact that there was no distinction in process or mode of operation between State and the old hand method. The mode of operation being old, we also show that the only apparatus to which Judge Buffington refers (*viz.*, "the shifting platform on which he [State] mounted" the spinning rolls) was old, both reciprocating and swinging, for the support of spinning rolls and fabric forming fingers, in the prior patents to Matherne, Seiberling & Stevens, and Moore (*supra*, pp. 21-35).

Judge Buffington in his opinion repeatedly expresses the same erroneous supposed distinction as follows:

> "the rapid rotation of the core and the consequent exercise of centrifugal force on the covering material by which it is automatically gradually stretched radially" (Vol. II, p. 407);
>
> "the crux and dominating functional feature of State's machine is the use upon the fabric of a centrifugal force caused by rapid rotation, a process which is wholly different from the original hand process" (Vol. II, p. 408);
>
> "the automatically stretched and loose fabric, or skirts" (*id.*);
>
> "the utilization of centrifugal force to stretch the fabric" (Vol. II, p. 411);
>
> "a centrifugally automatically stretched fabric" (*id.*);
>
> "stretched those fabric edges into radial diamond shaped interstices by the use of high speed core rotation" (Vol. II, p. 413);

"We have the loose edges, stretched by centrifugal force induced by rapid core rotation" (Vol. II, p. 414);

"the gist of which is the rapid rotation of the core and its resultant radial stretch" (Vol. II, p. 411);

"the stretched flying skirts of the fabric" (Vol. II, p. 408);

"the radially stretched and therefore puckerless fabric" (*id.*);

"utilizes the rapid rotation to enable the rolls to plaster an unpuckered radially distended diamond shaped fabric upon the core" (Vol. II, p. 411).

This constantly repeated supposed distinction that centrifugal force is utilized in State and is not utilized by the hand method to stretch the skirts preparatory to being acted upon by the spinning tools, is the distinction upon which the majority in the Third Circuit rest their opinion. This is directly opposed to the unanimous finding of the Sixth Circuit which was that there was no difference between the method of State and the old hand method. The unanimous opinion of the Sixth Circuit was stated as follows (257 F. R. 83):

"The evidence that this *identical* spinning operation was performed upon tire casings by hand tools before State's invention is sufficiently satisfying to meet all the requirements of the situation. (Italics ours.)

* * * * *

"Messrs. State and Seiberling were called as witnesses on the rebuttal; both were familiar with the history of the art; neither one denied or questioned this proposition; nor did any other witnesses for plaintiff. More than this, State, in his specification, speaks of this spinning operation as if it were well-known hand practice, and seems to rely upon the advantages of his tool over the existing hand method."

The condition of the testimony of these witnesses on this point is exactly the same in the instant case. Neither State nor Seiberling, nor plaintiff's experts, Browne or Ray, nor the practical Goodyear men, Bedell, Rowles and Price, made any pretence that the State machine method differed from the hand method or that there was any stretching of the skirts by centrifugal force. Defendant's expert, Waterman, had stated positively that there was no difference between the two methods and, if he had been wrong in this regard, the above named witnesses of plaintiff in rebuttal would certainly have so stated. Mr. Waterman's testimony was as follows (Vol. I, p. 234):

> "The method used by the operator when I saw him operating the machine [State's] was the customary procedure of hand building of tires * * * The spinning roll therefore was caused by the workman to act exactly as in hand spinning."

Indeed, the State patent itself says (Vol. II, p. 19, line 113), referring to the springs which press the spinning rolls toward the core:

> "These springs exert the pressure against the fabric for forming it against the sides of the core which would be exerted by the arm of the workman in case of a hand-tool or a hand-pressed roll."

Nowhere does the patent suggest that there is any difference between the machine method and the hand method.

No stretching of the skirts is attributed to centrifugal force in the Disclaimer or in the State patent.*

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* The patent does not mention radial stretch as being produced by anything. Plaintiff's expert said on cross-examination (Vol. I, p. 513) "I do not recall any place in the State patent which refers to radial stretching".

When plaintiff's counsel recited the characteristics of the licensees' machines in the deposition of Seiberling he did not attribute any stretching of the skirts to the centrifugal force (Vol. I, p. 398), and we do not think that plaintiff's counsel has ever taken this position in any brief filed either in the Sixth or in the Third Circuit.

Plaintiff's own expert testified in regard to the State patent (Vol. I, p. 484):

> "the sides of the fabric are formed by radial stretching *due to the action of the spinning-rolls.*" (Italics ours.)

Indeed, the position taken by plaintiff's counsel is that State's method differed from the hand spinning because the latter had, as he alleges, no radial stretch and was not, therefore, of the double stretch class.* Counsel said, in italics, on page 34 of his brief below, that one of State's "principal feats was the introduction [into the hand spinning method] of sufficient radial stretch to convert it into the double stretch system." But on this point the proofs were so overwhelmingly against plaintiff (including his own *ex parte* tests and exhibits therefrom), that the Court below has overruled this contention. Judge Buffington agrees in his opinion (Vol. II, p. 404)

> "that tires embodying these two features of double stretch and roll-spinning fastening were, before the patent to State here in question, hand made."

This emphasizes the fact that the Court below has based its decision upon a distinction not raised even by plaintiff's counsel.

Such being the state of the proofs, it is beyond question that **the majority of the Third**

* *i. e.*, having both circumferential and radial stretch.

Court of Appeals have rested their opinion upon a supposed distinction which has no foundation whatsoever.

When the decision was handed down, a motion for Rehearing was made for the purpose of enabling the Court to correct this error, which so permeated its opinion. In the Petition for Rehearing it was pointed out that the distinction had no foundation in the record and was opposed to the decision in the Sixth Circuit, and was also opposed to the elementary laws of physics. To emphasize this to the utmost the Petition for Rehearing was also accompanied by affidavits of mechanical engineering Professors from three universities (the University of Pennsylvania, Columbia University and Stevens Institute) quoting the statements of Judge Buffington's decision, asserting their incorrectness and pointing out that they were totally opposed to the laws of physics, according to which *centrifugal force cannot operate to radially stretch the skirts.* These affidavits are printed in this record, Vol. II, pages 423 to 428. Perhaps they are not evidence, but they are presented here, as they were presented to the Court below, to emphasize the fact that, in the absence of any evidence to support the supposed distinction, it was a fatal error for the Court to base its opinion upon such an assumption.

The motion for Rehearing was accompanied by one to remand the case for taking the testimony of these Professors upon this point.

The Court below denied both motions without making any change in its opinion and without making any explanation or any attempt to support the erroneous statements therein in any manner whatsoever.

It therefore conclusively appears that the finding

of fact, in which the Third Circuit differed from the Sixth Circuit, and upon which the opinion of the Third Circuit laid overwhelming stress, was wrong both when viewed from the record of this case and from the record of the Sixth Circuit case. It is most respectfully submitted, therefore, that this Court should affirm the decision of the Sixth Circuit, which was correct in its facts and not the decision of the Third Circuit, which was wrong in a fact upon which it was manifestly founded.

We return to this subject later on at page 99, and set forth the showing in this record as to the speeds at which the core is rotated in the hand method, and also in the various machines supposed to be built under or in infringement of the State patent, and the similarity in effect so far as the position of the fabric skirts is concerned.

In opposition to our Petition for Rehearing and Motion to Remand, Plaintiff filed a brief in the Court below which is in this record (Vol. II, p. 429), taking the position that it did not make any difference

> "whether or not radial stretch is effected entirely by centrifugal force, or *entirely by the advancing spinning roll*, or partly by centrifugal force and partly by the spinning roll, or in what proportions by centrifugal force and by the spinning roll." (Italics ours.)

But, if the statements of Judge Buffington above quoted are not facts, it results in re-establishing the fact found by the Sixth Court of Appeals that there was no novelty whatever in the State mode of operation as compared with the hand method, because Judge Buffington's distinction depends entirely upon the erroneous supposition that, in the State mode of operation, it is the *centrifugal force*

that does the radial stretching while in the hand operation this is done by the *spinning roll*. Therefore, the distinction *must* be material because, upon it, decision below in favor of Plaintiff has been grounded.

Overestimate of State's Importance.

Judge Buffington does not find that State was the first to produce a machine-made tire. What he finds is that State was the first to produce a machine-made tire of the *double stretch character; i. e.,* in which the fabric is stretched in two directions while shaping it to the core. He says:

> "This problem State met, and for the first time successfully solved in a machine-made tire of the double stretch character indicated."

His opinion throughout shows the assumption that a double stretch was of the utmost importance and, therefore, that the State patent is to be correspondingly considered. But the evidence is to the contrary.

The Goodrich tires are not double stretch, since the circumferential stretch is 18 per cent. (Vol. I, p. 190), and plaintiff's counsel himself says that this means the single stretch method (Brief below, p. 18).

The Hood tires are not double stretch (Vol. I, p. 204).

The tires made on the defendant's machine are not double stretch. The defendant's machine is not intended to double stretch the tire and when normally operated does not do so (Vol. I, pp. 278, 273).

The only evidence in the case in favor of the double stretch is the interested evidence of State

and the plaintiff Seiberling, himself, who states (Vol. I, pp. 397, 398):

> "Q. 84. Why was it the Goodyear Company has preferred the combined circumferential and radial stretch method to the single circumferential stretch method in the manufacture of tires?
>
> "A. Because the fabric when applied is under less tension, and it makes a stronger carcass.
>
> "Q. 85. State whether or not you have succeeded in getting a more uniform stretch by the combined stretch method than by the single circumferential stretch method.
>
> "A. Well, more uniform as to the sheet of fabric."

This at most is only the expression of an opinion from the one Goodyear Company. No one was called from any of the users of the machines to state that any of them regarded the double stretch as of importance. Seiberling admitted on cross-examination that the machines differed (Vol. I, p. 403, x-Q. 122) and on redirect-examination in stating their characteristics (Vol. I, p. 412, Rd-Q. 201) said nothing about double stretch; the characteristics named by him including only those *disclaimed as lacking novelty.*

The interested expression of opinion by Seiberling is much more than offset by the disinterested expressions of opinion by others in favor of the single stretch over the double stretch. Duncan, president of the Hood Company (Vol. I, p. 203, x-Q. 58), Raymond, vice-president of the Goodrich Company (Vol. I, p. 190). He says that 18% (single stretch) is "considered good practice to-day."

It is a misnomer to call any tire a machine-made tire. They are all made by hand with more or less aid from machinery. The hand is used in making

Extent of fabric spinning in State machine. The remainder is done *by hand*. Note wrinkles or puckers formed in the operation, contrary to Judge Buffington's statement.

tires according to the State patent for attaching the strip to the core in stretching it, as well as for the movement of the spinning roll carriage, and for spinning the fabric on the inner side portions. The only real difference from the hand method is that the machine core is turned by power, as distinguished from hand, while the screw-driven slide is interposed between the hand and the spinning rolls.

Judge Buffington praises the patent as substituting "automatic machine control for human skill" (Vol. II, p. 409). In fact, the machine does *not* do this. The radial feed of the spinning roll is accomplished by hand and subject to the vagaries of human operation, as is admitted by Plaintiff's expert (Vol. I, p. 76). The springs which impart the lateral pressure to the spinning rolls cannot possibly exert uniform pressure, as is also admitted (Vol. I, p. 63). In actual practice, at the Goodyear plant, this pressure is practically entirely manual (Vol. I, p. 232). See also illustrations on pages 189 and 191 of Volume II. In the use of these machines, even at the Goodyear plant, a large amount of the fabric is spun down by hand after the tire has been removed from the machine (Vol. I, p. 233). Looking at the photograph on page 191 of Volume II*, it is seen that the spinning rolls have only laid down about two-thirds of the fabric, yet it is admitted that this is about the limit of their work (Vol. I, p. 626). Instead, therefore, of automatic machine control being substituted for hand work, the fact is that the radial movement of the spinning rolls is performed and controlled almost entirely by hand; and the laying of a large part of the fabric on the core is done by hand. The machines speed up the work—that is all.

Extent of fabric spinning in State machine. The remainder is done *by hand*. Note wrinkles or puckers formed in the operation, contrary to Judge Buffington's statement.

* Reproduced opposite.

The goal of an automatic machine-made tire was much more nearly attained by the Vincent machine and the Belgian machine of the prior art than by the machine of the State patent (Vol. I, p. 249), and the machine of the defendant in this case is also automatic in this regard (Vol. I, p. 276).

It is certainly no invention to supply power instead of hand for turning the core wheel as required. Moreover, Vincent, Moore and the Belgian, as well as Seiberling and Stevens, had already done that, and it had sometimes been done in hand making (Vol. I, p. 148, 186). Beyond that, the only approach to a machine which the State patent added to the hand method was the provision of slides instead of the hand for supporting spinning rolls, and certainly this was not startling. Moreover, before State, a slide had already been provided for carrying the spinning rolls in the Belgian patent and radially swinging arms had been shown in the Moore machine, and in Seiberling & Stevens.

That commercial introduction of a machine is often a very deceptive criterion has been held by this Court in *McClain* v. *Ortmayer*, 141 U. S. 419; *Olin* v. *Timken*, 155 U. S. 141; *Duer* v. *Corbin*, 149 U. S. 216; *Adams* v. *Bellaire*, 141 U. S. 539. In *McClain* v. *Ortmayer, supra*, this Court said (per Mr. Justice Brown):

> "That the extent to which a patented device has gone into use is an unsafe criterion, even of its actual utility, is evident from the fact that the general introduction of manufactured articles is as often effected by extensive and judicious advertising, activity in putting the goods upon the market, and large commissions to dealers as by the intrinsic merit of the articles themselves."

And in *Duer* v. *Corbin, supra,* this Court said:

> "But there are so many other considerations than that of novelty entering into a question of this kind that the popularity of the article becomes an unsafe criterion."

There is, in the present case, not a shred of evidence to negative the inference that other factors, such as the great wealth and influential position of the Goodyear Company, may have largely, if not wholly, contributed to the extensive use of this machine. All we find is that the Plaintiff leased a large number of the machines, *embodying another patent and other claims of the State patent,* and obtained therefor a royalty equal only to a fraction of 1 per cent. on the value of the tires sold. Tire companies, chiefly interested in the manufacture of tires as distinguished from the manufacture of machinery for making tires, might well have considered it advisable to hire these machines and thereby not only obtain a supply of machinery but, at the same time, buy immunity from suit; and this without any consideration of the question of validity of the patent.

The Goodyear Company, with Mr. Seiberling at its head, was a very powerful factor at the time that it adopted the State machine and a very powerful example for others to adopt it. Moreover, it is settled that evidence of this character is only of weight when the question of patentability is in doubt. *Duer* v. *Corbin, supra.* In the present case, there can be no doubt on this point because the Disclaimer has conclusively admitted that the claims of the State patent under which these leases and licenses were granted were, in fact, void.

Again, all these leases contained a license under the Seiberling & Stevens patent also, which in-

cluded broad claims covering the machines, and which was involved in the *Firestone* suit and, originally, in this suit. The Court of Appeals for the Second Circuit has held in *Fielding* v. *Crouse*, 154 F. R. 377, that, in such case, the extensive use cannot properly be attributed to a single one of the patents and, particularly, to the later one.

But from the standpoint of commercial adoption of a machine for tire making the State machine was by no means the pioneer. The first State machine was in late 1907 or early 1908 (Vol. I, p. 389). The Vincent machine had been adopted by the great Goodrich Company, and also abroad, at least a year earlier (Vol. I, pp. 187, 388), and it has been developed, entirely independently of anything contributed by State, into the modern machines still in use by the Goodrich Company (Vol. I, p. 189). Although the commercial history of the Belgian machine could not be proved, because of the difficulty of proof abroad, particularly after the War, it does appear in the record that Matherne in 1911 offered the Hood Company of Boston machines of the Belgian patent, as well as machines of another type, and the Hood Company selected those of the other type for general use, merely because they were adapted to wind all of the layers of fabric composing a tire continuously on the core instead of in separated layers, as in the Belgian patent and the State patent (Vol. I, p. 204). It is a reasonable presumption that, since Matherne had reached the point of bringing the machine of his patent to this country in 1911, it had been successfully introduced in Europe much earlier and probably as early as the 1906 date of the Belgian patent which antedated State. Later on the Belgian machine was used at the Firestone plant and proved

a practical machine for making commercial tires (Vol. I, p. 161).

Judge Buffington refers to the fact that the Belgian patent was allowed to lapse for non-payment of taxes. Many reasons may be suggested for the default in the Belgian tax. It may have been a mere oversight. It may have been because there was no tire manufacturing going on within the small limits of Belgium or it may have been because of Matherne's change of residence, since it appears from his Belgian patent that he resided in Belgium in September, 1906, and from his German patent that he resided in Berlin in December, 1906. Moreover, this ceases to be of significance in view of his activity as late as 1911 in offering the machine in this country, and the indisputable fact that the machine is, in fact, a practical commercial arrangement.

From the foregoing, it is clear that State is not entitled to be treated as one first in the field, and that the Court below erred in so doing. The Disclaimer (discussed in the following pages) is, of itself, a binding admission to this effect (*Dunbar* v. *Myers*, 94 U. S. 187).

The Disclaimer does Not Avoid the Sixth Circuit Decision.

On December 13, 1918, the Sixth Court of Appeals handed down its opinion that:

> "State had nothing broadly new either in his method or in his selected tools" (257 F. R. 83).
>
> * * * * *
>
> "The evidence that this identical spinning operation was performed upon tire casings by hand tools before State's invention is suffi-

> ciently satisfying to meet all the requirements of the situation."
>
> * * * * *
>
> "the tool of the Belgian patent is a spinning roll, and performs a spinning operation; and, if we are right in what we subsequently say regarding the 'centrifugal force' theory, the Belgian tool in its radial progress was bound to stretch and reshape the fabric in substantially the same way that is done by State. Putting all these things together, State cannot be considered as the inventor of the method" (*id.* 83, 84).

About two months later, on February 15, 1919, the Disclaimer was filed (Vol. I, p. 9) stating that plaintiff had reasons to believe that the specification and claims of the State patent were "in part too broad including that of which said State was not the first inventor". This Disclaimer was, in effect, a manifest acquiescence in the above decision, and admitted in the recited terms that the mechanism set forth in the claims, as they stood, was not patentably new (*Dunbar* v. *Myers,* 94 U. S. 187; *Hillborn* v. *Hale,* 69 F. R. 958, 962; *Bracewell* v. *Passaic,* 107 F. R. 467, 469; *Societe* v. *George,* 135 F. R. 102, 103; *Union* v. *U. S.,* 112 U. S. 624, 644).

The Disclaimer is a remedy provided by the statute (Sec. 4917, *infra,* p. 55) only where "a patentee has claimed more than that of which he was the original or first inventor or discoverer".

Alike, because of the language of the Disclaimer above quoted, the language of the statute and the manifest acquiescence in the decision of the Sixth Court of Appeals, we may take the Disclaimer as an admission of the lack of novelty in the mechanism of the claims disclaimed (cases cited, *supra*)

and from this standpoint may consider whether the Disclaimer injected any patentable novelty into the claims.

The first requirement injected into the claims by the Disclaimer is that the sheet fabric strip applied to the ring-core shall be "previously unshaped". The first question, therefore, is whether this injects any patentability into the claims. We submit that it does not for two reasons:

1. Because the sheet fabric strip applied to the ring-core in the old hand process was "previously unshaped" in the same sense.

2. It is misleading to say that the State sheet fabric strip is "previously unshaped" because it is shaped by the concave tread roller 141 and the crown of the core, as shown in Figure 12*a* of the State patent, before the spinning operation begins.

The second requirement injected into the claims by the Disclaimer is that the ring-core be rotatable at "fast speed" by the power drive. This did not lend any patentability to the claims for the following reasons:

1. In the old hand method the speed of the core during the spinning was a "fast speed" (Vol. I, pp. 107, 117, 127, 137, 147, 153, 194, 286, 294); the low speed being that at which the strip was attached to the tread.

2. The core of the Matherne Belgian patent was described as running at a fast speed or "rapid rotation" (Vol. II, p. 221) during the spinning operation.

3. The core of the Moore patent was described as rotating at a "high rate of speed" (Vol. II, p. 281, line 74) during the spinning operation.

4. The core of the Seiberling & Stevens patent also had low and high speeds.

The third requirement injected into the claims by the Disclaimer is that the fabric shall be "centrifugally thrown out" by the speed of the core. In other words, the Disclaimer defines the degree of fastness of the speed as that which will "centrifugally throw out" the fabric upon which the spinning rolls act. The injection of this requirement did not lend any patentability to the claims for the following reasons:

1. The testimony is overwhelming and unrefuted that the speed of the old hand-operated cores was such that the fabric was "centrifugally thrown out" at the time of the spinning operation (Vol. I, pp. 107, 117, 127, 137, 147, 153, 194, 286, 294).

2. The fabric was "centrifugally thrown out" by the "rapid rotation" of the core described in the Mathern Belgian patent (Vol. II, p. 221).

Thus we have shown that nothing injected into the claims by the Disclaimer lends any patentable novelty to them, and, since the filing of the Disclaimer is in itself an admission of the lack of patentability of the claims as they stood before it was filed, it necessarily follows that the same lack of patentability exists after it has been filed. In other words so far as patentable novelty is concerned, the claims after the Disclaimer are just as invalid as they were found to be by the Sixth Court of Appeals before the Disclaimer.

On what theory then did Judge Buffington suppose that the claims were rescued from lack of patentable novelty by the Disclaimer? It was by

erroneously assuming that the Disclaimer injected into the claims a feature which is entirely foreign to the Disclaimer and to the State patent, which has never had any existence in fact, which has no support in the record, and which is contradicted by the affidavits submitted to Judge Buffington on the application for Rehearing and motion to Remand; this erroneous theory being that, *by the action of centrifugal force,* the "loose fabric *stretched itself radially* and thereby formed radial, diamond-shaped interstices, which contracted the normal length of the fabric".

This theory has been fully considered and refuted on pages 35 to 43 of this brief, and, with it eliminated, there is nothing upon which the majority decision below can rest.

The Disclaimer Invalidates the Patent for the Four Following Reasons:

I.

The Disclaimer Usurps the Function of a Reissue.

The question as to whether or not the Disclaimer accomplishes, in effect, that which could only have been accomplished by Reissue, if it could have been accomplished at all, is far from technical. It is of great practical importance because a Reissue speaks only from the date of its grant and there can be no recovery by Plaintiff for any acts of Defendant occurring prior to the grant of the Reissue. *Moffitt* v. *Garr*, 66 U. S. 273; *Eby* v. *King*, 158 U. S. 366. The Reissue Statute itself (R. S. 4916) covers this point for it says that

> "Every patent so reissued, together with the corrected specifications, shall have the same

> effect and operation in law, on the trial of all actions for causes *thereafter arising*, as if the same had been originally filed in such corrected form". (Italics ours.)

The filing of a Disclaimer, on the other hand, has no effect of canceling the original patent or of preventing recovery for acts committed prior to the date of the Disclaimer. R. S. Section 4922 (quoted *infra*) especially provides for this, and R. S. Section 4917 (quoted *infra*) also covers the situation by saying that "no such disclaimer shall affect any action pending at the time of its being filed".

Therefore, by, in effect, reissuing his patent under the guise of a Disclaimer, Plaintiff puts himself in the position of being able to recover for all past acts of Defendant, if they be held to be infringements, even though such acts were perfectly lawful when they were committed because of the confessed invalidity of the patent.

Another important distinction between these two Statutes resides in the fact that the Disclaimer is filable as of course, while the Reissue application is, by Statute, subject to the examination of the Commissioner of Patents. In this respect, the Statute particularly provides that

> "The specifications and claim in every such case shall be subject to revision and restriction in the same manner as the original applications are."

There is, accordingly, a *prima facie* validity to a Reissue grant which is utterly lacking in the case of a Disclaimer. It is, therefore, not only unlawful to utilize the Disclaimer Statute for a purpose covered only by the Reissue Statute; but it is most unfair to take advantage of the Disclaimer Statute

and file, as of course, a document which changes the patent in the effort to collect tribute from lawfully acting third parties, when such document could certainly not be filed if it were subjected to the scrutiny of the Commissioner, as required by the Reissue Statute.

In his dissenting opinion below, Judge Davis said (Vol. II, p. 416):

> "If claims may be changed so that a combination of elements constituting a simple machine may be modified and formed into a new combination and the elements given a prescribed mode of operation by a disclaimer, it is difficult to know what function a reissue performs."*

The sections of the Statute relating to Disclaimers read as follows:

> "Section 4917: Whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the fee required by law, make disclaimer of such parts of the thing patented as he shall not choose to claim or to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent. Such disclaimer shall

* The decision of the majority of the Court below sustaining the Disclaimer has been criticized, at least by implication, by the Court of Appeals for the Fourth Circuit, which held *invalid* a Disclaimer that it said was not paralleled in any prior case with the possible exception of the decision of the Court of Appeals for the Third Circuit in the case at bar. See *Rosemary* v. *Halifax*, 288 F. R. 683, 686.

be in writing, attested by one or more witnesses, and recorded in the Patent Office; and it shall thereafter be considered as part of the original specification to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof. But no such disclaimer shall affect any action pending at the time of its being filed, except so far as may relate to the question of unreasonable neglect or delay in filing it."

"Section 4922. Whenever, through inadvertence, accident, or mistake, and without any wilful default or intent to defraud or mislead the public, a patentee has, in his specification, claimed to be the original and first inventor or discoverer of any material or substantial part of the thing patented, of which he was not the original and first inventor or discoverer, every such patentee, his executors, administrators, and assigns, whether of the whole or any sectional interest in the patent, may maintain a suit at law or in equity, for the infringement of any part thereof, which was *bona fide* his own, if it is a material and substantial part of the thing patented, and definitely distinguishable from the parts claimed without right, notwithstanding the specifications may embrace more than that of which the patentee was the first inventor or discoverer. But in every such case in which a judgment or decree shall be rendered for the plaintiff, no costs shall be recovered unless the proper disclaimer has been entered at the Patent Office before the commencement of the suit. But no patentee shall be entitled to the benefits of this section if he has unreasonably neglected or delayed to enter a disclaimer."

In *Hailes* v. *Albany*, 123 U. S. 582, 587, the Court said:

"We think that counsel is mistaken in supposing that these sections have reference to

different sets of circumstances as grounds for a disclaimer. They both relate to the same condition of things in that regard, namely, to the case in which a patentee, through inadvertence, accident, or mistake, and without any fraudulent intent, has included and claimed more in his patent than he was entitled to, and where the part which is *bona fide* his own is clearly distinguishable from the part claimed without right. In every such case he is authorized by section 4917 to file a disclaimer of the parts to which he is not entitled; and that is the only section which gives him this right. The object of the other section (4922) is to legalize and uphold suits brought on such patents as are mentioned in section 4917, to the extent that the patentees are entitled to claim the inventions therein patented;"

* * * * *

"we think it clear that there is no authority for amending a patent by means of a disclaimer in the manner in which the appellants have attempted to amend their patent in the present case."

The Reissue Statute (R. S. 4916) is designed for a case where an inventor has failed to cover by his patent all that which was his real invention. Under the Reissue Statute, the claims of a patent may be either broadened (*Miller* v. *Brass Co.*, 104 U. S. 350) or narrowed (*Parker* v. *Yale*, 123 U. S. 87), and the specification may also be amended (*id.*).

The vital distinction, therefore, between the Disclaimer Statute and the Reissue Statute, is that a Disclaimer can only be employed for the purpose of deleting a material and substantial part, which is *definitely distinguishable from the remainder;* while a Reissue can be employed for the purpose of reframing the claims so as to re-state the invention

covered thereby in terms appropriate to the real invention of the patentee.

By way of anticipation, it may be here noted, that Plaintiff, in his brief below, says (p. 83):

> "The meaning of the selected claims is clarified and qualified by the disclaimer,"

and Judge Buffington says (Vol. II, p. 413) that the effect of the Disclaimer is to

> "eliminate from the specification and the construction of the claims all elements save those which constituted the true disclosure State gave the art."

We submit that this shows an effort to reissue the patent by way of Disclaimer, which latter cannot be used for the purpose of clarifying indistinct claims or eliminating elements from claims, but only for deleting definitely distinguishable parts of the thing patented, which parts the patentee no longer chooses to hold by virtue of the patent.

II.

The Disclaimer Rewrites the Claims.

The parts of the Disclaimer relating to the claims of the State patent which have been sustained by the Court below read as follows:

> "First. In respect to each of claims 4, 5, 6 and 7 of said patent, I hereby disclaim any combination of the recited elements *except when* constructed and co-ordinated for shaping and applying a previously unshaped sheet-fabric strip to that part of the recited ring-core beyond the tread portion, *and unless* the ring-core is rotatable at fast speed by the power-drive, whereby the unapplied fabric portion is thrown out from the side of the ring-

core by centrifugal force, and the recited spinning-roll support is mechanically mounted to insure its radial movement with a gradual advance in proper relation to the fast rotating ring-core, whereby the spinning-roll, by such gradual advance over the ring-core and while pressed toward it, acts gradually upon the centrifugally thrown-out fabric to shape it to the side of the rotating ring-core while bringing it into adhesive contact therewith.

"Second. In respect to each of claims 12 and 13 of said patent, I hereby disclaim any combination of the recited elements, *except for* the combined operations of first stretching the middle or tread portion of a previously unshaped fabric strip onto the recited ring-core and thereafter shaping and applying to the ring-core the fabric beyond the tread portion, *and unless* the recited elements are so constructed and co-ordinated that before the change from slow speed to fast speed the fabric strip as drawn from the recited stock roll onto the ring-core is stretched circumferentially under uniform tension while applying it to the tread portion, and, after the change to fast speed, the unapplied fabric beyond the tread portion is thrown out from the side of the ring-core by the consequent centrifugal force, while the recited spinning-roll, in its radial movement, acts gradually upon the centrifugally thrown-out fabric, to shape it to the side of the rotating ring-core beyond the tread portion while bringing it into adhesive contact therewith.

"Third. In respect to each of claims 22, 23, 24, 25 and 26, of said patent, I hereby disclaim any combination of the recited elements *except when* constructed and co-ordinated for shaping and applying a previously unshaped sheet fabric strip to that part of the recited ring-core beyond the tread portion, *and unless* the power-drive for the ring-core functions by a suffi-

ciently high speed rotation and consequent centrifugal force to throw the unapplied fabric portion out from the side of the ring-core, while the recited spinning-roll, in its radial movement and while pressed toward the ring-core, functions by a gradual action upon such centrifugally thrown-out fabric, to shape it to the side of the rotating ring-core while bringing it into adhesive contact therewith."

To illustrate the effect of the Disclaimer, we show, in parallel columns, the first claim in suit (4) as written in the patent and as modified by the Disclaimer, the modifications being printed in italics.

As in the Patent.	**As Modified by the Disclaimer.**
4. An open tire-shoe making machine comprising the combination of a sheet-fabric supply, a power-driven ring-core,	4. An open tire-shoe making machine comprising the combination of a sheet-fabric supply, a power-driven ring-core, *only when the ring-core is rotatable at fast speed by the power drive, whereby the unapplied fabric portion is thrown out from the side of the ring-core by centrifugal force,*
a radially moving support laterally spring-pressed toward the core,	a radially moving support laterally spring-pressed toward the core, *only when the said support is mechanically mounted to insure its radial movement with a gradual advance in proper relation to the fast rotating ring-core,*

and a spinning-roll mounted on the support for passing radially along the sides of the tire-shoe to shape the sheeted fabric on the core, substantially as described.

and a spinning-roll mounted on the support for passing radially along the sides of the tire-shoe to shape the sheeted fabric on the core, *only when the spinning-roll, by such gradual advance over the ring-core and while pressed toward it, acts gradually upon the centrifugally thrown out fabric to shape it to the side of the rotating ring-core while bringing it into adhesive contact therewith, substantially as described.*

and

only when the combination of the elements recited in the claim is constructed and co-ordinated for shaping and applying a previously unshaped sheet fabric strip to that part of the recited ring-core beyond the tread portion.

Reference to the recent decision of the Court of Appeals for the Fourth Circuit in *Rosemary* v. *Halifax*, 280 F. R. 683 (cited *supra*, p. 55), which, by implication, at least, disapproves (on p. 686) the decision of the majority of the Court below, will show that the Disclaimer, therein printed on page 685, and which was held invalid by that Court, was no more objectionable than the one at bar.

The mere reading of the Disclaimer must certainly attract attention when it is realized that

the only thing permitted by the Statute is the elimination of "parts of the thing patented" which are "definitely distinguishable from the parts claimed without right"; and when it is remembered that this Court had held in *Hailes* v. *Albany*, 123 U. S. 582, that if the change "requires an amended specification or supplemental description to make an altered claim intelligible or relevant, whilst it may possibly present a case for a surrender and reissue, it is clearly not adapted to a disclaimer".

Plaintiff says that he disclaims any combination of the elements recited in claims 4, 5, 6 and 7 except when they are constructed and co-ordinated for operating upon a previously unshaped sheet-fabric. What is meant by disclaiming "any combination" of the elements is not clear, since there can naturally be in a given claim only one combination of the recited elements. Furthermore, if those elements are shown and described in the patent as being "constructed and co-ordinated" for performing a particular function, then the recitation in the Disclaimer that they are disclaimed unless constructed and co-ordinated for performing said function, amounts to nothing. If the said elements are not shown and described in the patent as thus constructed and co-ordinated, then no Disclaimer can validly impart to them such construction and co-ordination. Hence, these parts of the Disclaimer are either meaningless or illegal.

Turning to the statement that the combinations of the claims are disclaimed except when operating upon "unshaped sheet-fabric", it will be observed that this constitutes an effort to define a claim in a machine patent by the nature of the material upon which it operates.

Not only is a Disclaimer unadapted to such a purpose, but this construction would make the same apparatus infringing or non-infringing according to whether or not the material upon which it operates was flat or partially shaped prior to the operation of the claimed elements. The material operated upon by a machine cannot be a part of the combination claimed. (*Morgan* v. *Albany*, 152 U. S. 425.) In *Motion* v. *Universal*, 243 U. S. 502, this Court fully considered the question of a machine patent with respect to the material upon which the machine operates, and stated:

> "Plainly, this language of the statute and the established rules to which we have referred restrict the patent granted on a machine, such as we have in this case, to the mechanism described in the patent as necessary to produce the described results. It is not concerned with and has nothing to do with the materials with which or on which the machine operates. The grant is of the exclusive right to use the mechanism to produce the result with any appropriate material, and the materials with which the machine is operated are no part of the patented machine or of the combination which produces the patented result."

As the material itself can be no part of the combination—certainly the condition of the material cannot be.

Another feature of this part of the Disclaimer is that the patentee discards any combination of the recited elements except when used to apply the fabric "to that part of the recited ring core beyond the tread portion,". Any part of the combination of elements which has to do with applying and

shaping the fabric to the tread portion is thereby eliminated from the claim. Not only is this apparent, but it is admitted by Plaintiff who said in his brief before the Court below (p. 3), that these claims relate "only to a single combination, entirely without reference to either preceding or subsequent operations". But every one of these claims includes a "sheet-fabric supply" as a positive element of the combination. Thus claim 4 says:

> "An open tire shoe making machine comprising, the combination of a sheet-fabric supply, etc."

and this fact is emphasized because this element was inserted in these claims by amendment after the same had been rejected by the Patent Office (Vol. II, pp. 335, 337), and State said to the Patent Office at the time this amendment was made (Vol. II, p. 355) that he had

> "put as an element into each claim a sheet fabric supply, either generically, as in claims 4 to 10, or else specifically, as in the claims mentioning the stock roller for carrying sheeted fabric."

So that the plain and avowed effect of this portion of the Disclaimer is to eliminate from the elements recited in combination in these claims one of the recited elements. If it were law that a Disclaimer could be used for the purpose of excising an element from a combination claim, one of the fundamental principles of patent law would be wrecked, because thereby a member of the public who had relied upon the claim as written and made a machine which did not infringe because it omitted one of the elements recited in the claim, could lose his entire investment and become an infringer through the

simple expedient of the patentee filing a Disclaimer eliminating from the claim the element which was absent from the machine of said member of the public, and thereby obtaining an injunction and accounting against this perfectly innocent person who had relied upon the most firmly established canon of the patent law that one who omits an element of a claim does not infringe it. (*Cimiotti* v. *American*, 198 U. S. 399.) If this Disclaimer is good, what becomes of all the decisions of this Court that a patentee is bound by his claims as framed, and that, as against him, every element recited must be considered to be material? (*Minerals* v. *Butte*, 250 U. S. 336.) How can a patentee be said to be effectively bound if he can, at any time, cancel an element from his claim by the simple act of filing a Disclaimer? Nothing more iniquitous and of graver portent could be conceived than to permit this latitude to a patentee. Indeed, no such effect could even be obtained by reissue. *Shepard* v. *Carrigan*, 116 U. S. 592, 598; *Huber* v. *Nelson Manufacturing Co.*, 148 U. S. 270; *Yale* v. *Berkshire*, 135 U. S. 342; *Leggett* v. *Avery*, 101 U. S. 256.

In the present case, this change would make these claims cover the activities of a person who applied the fabric circumferentially to the tread of the core by hand, providing he thereafter used the remaining elements of the claims as recited in the Disclaimer; and yet, this person would not be employing "a sheet-fabric supply", which is not only shown and described in the patent but which was required to be put into these claims as a positive element of the combination before the Patent Office would allow the same.

It is also fundamental that the elimination of

an element from a claim broadens the claim, and yet Judge Buffington says:

> "In this case, there is no element of fraud, bad faith or an attempt to broaden the disclosure or claims, but an honest effort to eliminate from the specification and the construction of the claims all elements save those which constitute the true disclosure State gave the art."

With respect, it must be submitted that this statement is self-contradictory, since the learned Judge agrees that the Disclaimer eliminates elements in construing the claims, and such elimination necessarily broadens the claims. Furthermore, the true disclosure which State gave the art is the disclosure of the specification and drawings of the patent, and they expressly show, describe and emphasize the supplying of the fabric to the core from a source of sheet fabric supply.

In another aspect, this portion of the Disclaimer is equally vicious, because, by eliminating the sheet fabric supply as an element of the claims, it has made new combinations, which certainly cannot validly be done by Disclaimer. That the Disclaimer has this effect is admitted by Plaintiff, since he says in his brief below (referring to claim 22 as an example) that the Disclaimer "makes it a new combination" (p. 185). When the combination is changed, the invention covered by the claims is changed, and the cases are unanimous that this cannot be done by Disclaimer. *Hailes* v. *Albany*, 123 U. S. 582; *Strause* v. *William*, 235 F. R. 126, 130 (C. C. A., 2); *Albany* v. *Worthington*, 79 F. R. 966 (C. C. A., 2). As Judge Davis said in his dissenting opinion (Vol. II, p. 416):

> "If claims may be changed so that a combination of elements constituting a simple ma-

chine may be modified and formed into a new combination and the elements given a prescribed mode of operation by a disclaimer, it is difficult to know what function a reissue performs."

The Disclaimer also says that any combination of the claims is discarded "unless the ring core is rotatable at fast speed by the power-drive, whereby the unapplied fabric portion is thrown out from the side of the ring-core by centrifugal force,". The claim itself says nothing about any "fast" speed of the core, but the specification mentions this in several places and illustrates the speed as 207 R. P. M. (p. 2, line 8). This is the only fast speed mentioned in the patent so that, if this part of the Disclaimer is to find any basis in the specification and to be at all definite, it must refer to a speed of substantially 207 R. P. M. But here another difficulty develops, because it would not be possible to draw the fabric onto the core from the sheet fabric supply if any such high speed core were used. At such speed the core would make a complete revolution in less than one-third of a second and, as it is necessary for the workman, when drawing the fabric on to the core from the sheet fabric supply, to stop the core at the end of each complete revolution and sever the wound-on fabric from the supply, it is obvious that any such speed would be out of the question in connection with this operation. The patent says that the speed employed when drawing the fabric onto the core is only 6 R. P. M. (p. 2, line 3). This throws further light on Plaintiff's anxiety to eliminate the sheet fabric supply as an element from these claims, because the fast speed which the Disclaimer attributes to the core could

not be used in connection with a sheet fabric supply.

The other significant point of this part of the Disclaimer is the statement that the fast speed shall throw the unapplied fabric portion out from the side of the ring core by centrifugal force. The Disclaimer does not say to what extent or angle the fabric is thrown out, so that this language is entirely indefinite.

Plaintiff's expert says (Vol. I. pp. 66-70), "I do not understand that any particular angle is meant,"; that centrifugal force would be used to the best advantage if the fabric were thrown out smoothly at right angles to the core, and that this occurs (for a medium size core) at a speed somewhat between 80 and 120 R. P. M. He does not know at just what speed this does occur (Vol. I, p. 68, x-Qs. 95-97), and cannot state within 45 degrees at what angle the fabric must be thrown out in order to do useful work (Vol. I. p. 69, x-Qs. 100-102).

There is no support in the patent specification for bringing in this feature of centrifugal force as an element of the invention. It is only mentioned once and there as an obstacle to be overcome. The patent says (p. 6, line 36):

> "The fact is when the ring-core is rotating at high-speed, the centrifugal force tends to throw the fabric out at a right angle from the core-plane and unless the roller recedes in the manner shown, the fabric will become entangled with it."

The Court of Appeals for the Sixth Circuit said, 257 F. R. at page 87:

> "Centrifugal force is not mentioned in State's specification, save as creating an obstacle to be avoided."

Finally, the Disclaimer says that the combination of elements in the claim is disclaimed unless the spinning roll "acts gradually upon the centrifugally thrown out fabric to shape it to the side" of the core. There is nothing in these claims as they stand to say that the spinning roll shall act upon centrifugally thrown out fabric, so that this is another instance of changing the claim by the Disclaimer.

That the above mentioned parts of the Disclaimer do amount to a rewriting and changing of the invention covered by these claims seems to have been admitted by the Plaintiff, since he said on pages 184 and 185 of his brief below, when referring, as an example, to claim 22 (and the argument equally applies to claim 4):

> "In the claim as it originally stood, there was no reference to the speed, and this is now supplied."
>
> * * * * *
>
> "In the claim as it originally stood, while the spinning-roll is said 'to shape the sheeted fabric on the core', there was no reference to its action upon the 'centrifugally thrown out fabric'. This is now supplied."

These elements of high speed and centrifugally thrown out fabric are supplied by the Disclaimer to all the claims sustained by the lower Court, so that the admissions in Plaintiff's brief below apply to all. It is such "amending a patent by means of a disclaimer" which this Court has disapproved. *Hailes* v. *Albany*, 123 U. S. 582, 587. A Disclaimer cannot be used to "supply" things to a patent or claim thereof. It can only be used to delete a part which is "clearly distinguishable" from the remainder.

In *Hailes* v. *Albany, supra*, the patent was on a stove in which the fire-pot had slots in its side in order to promote better combustion by feeding air from the bottom to the coals in the fire-pot. In the patent drawings the fire-pot was shown as having the slots extending from the bottom substantially half-way up the sides thereof, but the specification simply said the fire-pot was

> "made with vertical openings through its sides for the admission of air into the body of coal within it."

The claim of the patent in suit read as follows:

> "arranging a perforated fire-pot with a grate bottom within a circular stove having provision for the admission of air below the point of suspension of said fire-pot, substantially as described."

A Disclaimer was filed by the patentee which read, in part, as follows:

> "Your petitioners, therefore, hereby enter their disclaimer to so much of the first claim as covers perforations or openings in the sides of a suspended fire-pot extending throughout the entire depth of sides, and limiting such perforations or openings to substantially the lower half of the fire-pot, the material or substantial part of the thing patented in and by said claim not hereby disclaimed being as follows:
>
> "A fire-pot suspended from its upper edge with substantially the upper half of its sides made solid, and substantially the lower half of its sides containing perforations or openings."

In spite of the fact that, as above noted, the structure claimed by the language of the Disclaimer was clearly shown in the drawings of the patent, this Court held the Disclaimer and patent to be void and

used the following language (per Mr. Justice Bradley):

> "And if it requires an amended specification or supplemental description to make an altered claim intelligible or relevant, whilst it may possibly present a case for surrender and reissue, it is clearly not adapted to a disclaimer. A man cannot, by merely filing a paper drawn up by his solicitor, make to himself a new patent, or one for a different invention from that which he has described in his specification. That is what has been attempted in this case.
>
> * * * * *
>
> "It is contended that the drawings annexed to the patent may be referred to for the purpose of defining the invention and showing what it really was. But the drawings cannot be used, even on an application for a reissue, much less on a disclaimer, to change the patent and make it embrace a different invention from that described in the specification.
>
> * * * * *
>
> "we think it clear that there is no authority for amending a patent by means of a disclaimer in the manner in which the appellants have attempted to amend their patent in the present case."

To the same effect are *Enameled* v. *Western,* 269 F. R. 620, 628, 629 (C. C. A., 6); *Strause* v. *William,* 235 F. R. 126, 130 (C. C. A., 2); *Fisher* v. *Automobile,* 201 F. R. 543, 545, aff. 209 F. R. 225 (C. C. A., 2); *Albany* v. *Worthington,* 79 F. R. 966, 969 (C. C. A., 2); *Westinghouse* v. *New York,* 139 F. R. 265, 267.

None of the cases cited by Plaintiff constitutes an authority for sustaining the present Disclaimer, since none of them had to deal with any such document. *Silsby* v. *Foote,* 14 How. 218, is the leading case, so that, if it does not support Plaintiff, none of the other cases do. In that case, what the pat-

entee did was to disclaim the application of the metallic rod

> "to any other use or purpose than that of regulating the heat of a stove,"

He limited the invention to a particular class of objects, *i. e.*, stoves. Such a Disclaimer amounts to a definite limitation of the patent to the specific purpose set forth in the patent so as to obviate too broad a construction. For instance, if, in the present case, State had said in his patent that the machine could be used not only for making tires but also for making life preservers; he probably could, by Disclaimer, limit the claims to a machine for making tires alone, thereby excluding any breadth of scope which might cover machines for manufacturing life preservers. But there is not a thing in these instances which parallels the present circumstances; and there is not any authority whatever for using a Disclaimer to eliminate from a claim one element of a therein recited combination, or for "supplying" to the claim other features to which it previously "made no reference". If such a practice were law, there would be no limit to the extent to which patents could be amended and changed by Disclaimer, and the whole theory of the patent law that the disclosure of a patent must be definite so that it can be relied upon by the public (*McClain* v. *Ortmayer*, 141 U. S. 419, 422) as well as the basis for the long line of cases which sustain intervening rights against broadening of claims even by reissue (*Miller* v. *Brass*, 104 U. S. 350; *Corbin* v. *Eagle*, 150 U. S. 38) would become of no avail. Plaintiff seeks, by the Disclaimer, to rewrite these admittedly invalid claims so as to make unlawful acts of Defendant which were lawful at the time they were committed.

While we have, in this brief, adopted the

method attributed to the patent by Plaintiff's expert, for the purpose of comparing it with the prior hand and machine methods, it is necessary, in considering this aspect of the Disclaimer, to point out that the method or mode of operation actually described in the patent is quite different in that, instead of employing circumferential stretch to shape the fabric to the tread portion, it employs a special "tread roller" for this purpose, which tread roller and its function have been eliminated from the patent by the Disclaimer because Defendant's machine has nothing which can even be argued to be a counterpart thereof.

The SECOND section of the Disclaimer is also bad for the reasons above mentioned, except that it apparently does not seek to eliminate the sheet fabric supply (called in these claims "a stock roll for carrying a strip of sheet fabric") as an element of the combination. However, this section of the Disclaimer is faulty in other respects. **It says that the patentee disclaims any combination of the elements except for "the combined operations of first stretching the middle or tread portion of a previously unshaped fabric strip onto the recited ring-core" etc. This stretching of the tread portion of the fabric onto the core is not only unsupported by the specification and drawings of the patent —it is positively contradictory thereto.**

There is no need of analysing the THIRD section of the Disclaimer, because it is subject to the same objections. If the First section is bad, obviously the Third section is also bad.

The mode of operation *actually* described in the patent is as follows: Rubberized fabric is led from

a stock roll 25 (Fig. 2) and the end stuck to the top of the core 115. The core is then rotated very slowly, *e. g.*, 6 R. P. M., until the fabric has passed once completely around it. The workman severs the applied fabric from the remainder so as to leave a single layer circumferentially applied to the periphery of the core (Pat. p. 6, line 115). The relationship of the fabric and core at this first stage is diagrammatically illustrated by the patentee in Fig. 12, it being seen that the fabric is caused to adhere only to the extreme outer portion of the core.

Fig. 12.

The patent says (p. 2, line 43):

> "Figs. 12, 12*a*, 12*b*, 12*c* are cross-sections of a ring-core for inextensible-edge tires with the fabric in different stages of application";

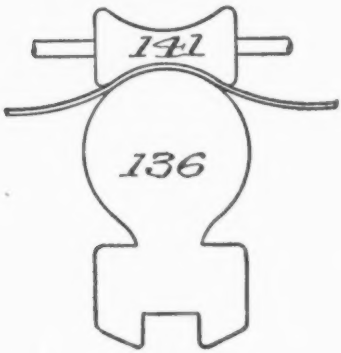
and on page 6, line 67, after referring to the same figures:

> "The fabric in the several stages of application is also shown in these several figures."

Following this, the core is rotated at a very much higher speed (207 R. P. M.), and a so-called "tread-forming-roll" 141 is brought into engagement with the periphery of the core, as indicated in Fig. 12*a**

* Plaintiff ignores the showing of Figs. 12 and 12*a*, because they disprove the mode of operation which he endeavors to read into the patent.

Fig. 12a.



This roll is mounted on the same device as the spinning rolls 147 and is moved inwardly into contact with the core by the manual operation of the same hand wheel; the arrangement being such that the device which supports these different tools is horizontally revolvable so as to bring them, one at a time, into proper position for engagement with the core. This tread forming roll 141 serves to shape the fabric to most of the tread portion of the core, as indicated in Fig. 12*a*.* See the patent, page 6, line 120, where it says:

> "The fast speed mechanism is now brought into play. The tread-forming-roll 141 is then brought into action to shape and smooth the tread-portion of the fabric against the outer periphery of the ring-core."

* Plaintiff also ignores this function of the tread roller, and for the same reason. For other places where the patent says the tread roller shapes the fabric to the tread, see page 5, line 41; page 5, lines 54-60; page 5, lines 85-88; page 6, line 129; page 7, line 1; page 7, lines 114, 115; page 7, lines 125, 126.

The tread roller 141 is now drawn back and moved aside from the core while the spinning rolls or stitchers 147 are brought into position to engage the fabric. These stitchers at first bear on the edges of the fabric which has been shaped to the core by the tread forming roll (the patent says, p. 7, line 6):

> "At first the spinning-rolls are positioned to act upon the edges of the tread portion of the tire-shoe."

They are then gradually moved radially inward in contact with the fabric to shape the latter on the sides of the core, as indicated in Figs. 12*b* and 12*c*.

Fig. 12b.

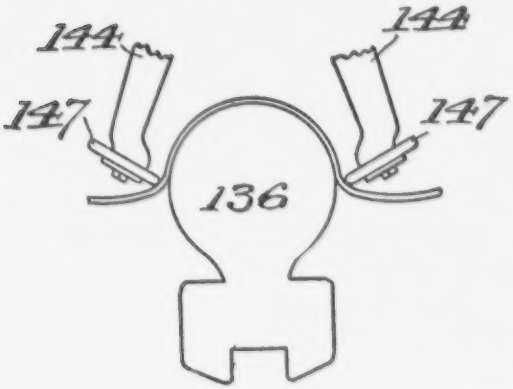
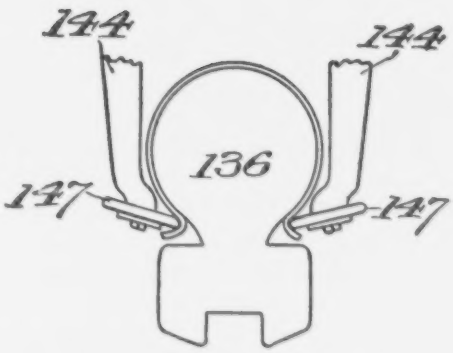


Fig. 12c.



There is not a word in the patent about any stretching of the fabric onto the tread portion of the core as it is applied to the outer periphery.* It is merely stated that the fabric is drawn from the stock roll under tension, and Fig. 12 of the drawings shows that this tension is only sufficient to cause the fabric to adhere to the periphery of the core. After it has been thus applied, the shaping of the fabric to the tread portion is done by the tread roll 141 throughout the central portion and by the spinning rolls 147 at the sides or edges of the tread portion.

The apparent reason for this language of the Disclaimer, to wit:

> "stretching the middle or tread portion of a previously unshaped fabric strip on to the ring-core."

* It should be noted that reference in the State patent to a "stretching roll", refers only to the roll 41, which is spirally grooved, as indicated in Fig. 13 of the patent drawings, so as to laterally smooth out any creases in the fabric as it is being drawn on to the core (p. 3, lines 6-18). There is no device described in the patent as stretching the fabric either circumferentially or radially.

is the fact that Defendant's machine has no tread forming roll but does have mechanism which effectively stretches the fabric in a circumferential direction as it is applied to the core, so as to cause it to closely conform to a large portion of the outer surface thereof. In other words, the patent in suit expressly provides for shaping the fabric to the tread portion of the core by the use of a concave roller 141, while Defendant's machine accomplishes this shaping by simple stretching of the fabric. *Now, by Disclaimer, Plaintiff seeks to change these claims of his patent to make them embody Defendant's mode of operation in this respect.*

Claims 12 and 13, which are affected by this section of the Disclaimer, do not even indicate a tension as being exerted on the fabric. They simply refer to the core as "receiving" fabric from the stock roll. Furthermore, this part of the Disclaimer provides that the shaping of the fabric to the tread portion must be done before the change from slow speed to high speed rotation of the core, while the patent distinctly says that it is done after high speed rotation has begun (Pat. p. 6, line 120).

That the Plaintiff has sought to revise his patent in this respect by the Disclaimer is also shown by that part which cancels the matter on lines 79 and 80 of page 1 of the specification. The sentence of the specification which includes this disclaimed part reads as follows:

> "So, too, the combination of the tread-forming-roll for operating upon the tread portion and the spring-pressed spinning rolls for shaping the sides of the tire shoe by radial motion with reference to the ring-core forms an effective instrumentality for completely shaping the tire *and an important feature of my invention.*"

The part of the sentence which is cancelled by the FIFTH section of the Disclaimer is italicized in the above quotation. The Plaintiff has disclaimed this as being a part of the invention and, through his expert, Browne, asserts that what he now claims for completely shaping the tire is the combination of circumferential stretching of the fabric to cause it to be shaped to the tread portion and the subsequent action of the spinning rolls to cause it to be shaped to the sides. He does not delete a "definitely distinguishable" part—**he changes the statement of the invention.**

It is settled (p. 71, *supra*) that no such change can be made by Disclaimer. The language of this Court in *Hailes* v. *Albany*, 123 U. S. 582, 587, sufficiently covers this situation:

> "A man cannot, by merely filing a paper drawn up by his solicitor, make to himself a new patent, or one for a different invention from that which he has described in his specification."

III.

The Disclaimer has Changed the Patent from a Machine Patent to a Method Patent.

As previously stated, Plaintiff places great reliance upon the method or process which he says is performed by the machine of the State patent. He calls it a "mode of operation". But it really is a method or process, as is well substantiated by the fact that Judge Buffington in his opinion continually refers to it as a "process".

That a process and an apparatus are different inventions cannot be disputed. The Statute itself (Sec. 4886 Rev. Stat.) divides inventions into "new and useful art, machine, manufacture, or composition of matter" and the word "art" is always understood as meaning "process" (*Expanded* v. *Bradford*, 214 U. S. 366). If the process is not distinct from the machine, then it is nothing more than the function of the machine, and cannot be patented (*Busch* v. *Jones*, 184 U. S. 598, 607). The distinction between a machine and a process was succinctly stated by Mr. Justice Bradley in *Tilghman* v. *Proctor*, 102 U. S. 707 (quoted with approval in *Expanded* v. *Bradford, supra*). He said:

> "A machine is a thing. A process is an act or mode of acting. The one is visible to the eye—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed."

This question was again considered by this Court in *Leeds* v. *Victor*, 213 U. S. 301, where it was said:

> "A process and an apparatus by which it is performed are distinct things."

This difference is well illustrated by the two claims involved in that case. The process claim read as follows:

> "The method of reproducing sounds from a record of the same, which consists of vibrating a stylus and propelling the same along the record, substantially as described."

The apparatus claim read:

> "A sound-producing apparatus, consisting of a traveling tablet having a sound-record formed

thereon and a reproducing-stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described."

By comparing these claims with a typical claim of the State patent in its original condition and as modified by the Disclaimer, it will be apparent that there has, in fact, been a change from machine claim to method or process. Claim 4 as written in the patent, reads as follows:

> "4. An open-tire-shoe making machine comprising the combination of a sheet-fabric supply, a power-driven ring-core, a radially moving support laterally spring-pressed toward the core, and a spinning-roll mounted on the support for passing radially along the sides of the tire-shoe to shape the sheeted fabric on the core, substantially as described."

Here we have a recitation of the mechanical elements; but when we come to the Disclaimer, we find that Plaintiff abandons all combinations of the said elements except when they are applying the said strip to the core "beyond the tread portion", and except when the core is rotatable "at fast speed", and except when the "unapplied fabric is thrown out by centrifugal force", and except when the "spinning roll acts gradually upon the centrifugally thrown out fabric". In other words, the Disclaimer calls for a *method* of shaping a previously unshaped sheet-fabric strip to a portion of the ring core beyond the thread portion, which consists in placing the fabric on the core, rotating the core at fast speed whereby centrifugal force throws the fabric outwardly, gradually acting upon the centrifugally thrown out fabric by a radially moving spinning roll, and bringing the fabric into adhesive contact with the core; whereas the claim as written in the

patent merely calls for the mechanical elements themselves in combination, and says nothing about a previously unshaped fabric strip, rotating the core at fast speed, centrifugal force, or acting upon thrown out fabric.

In the *Leeds* v. *Victor* case, the method claim calls for *propelling* the stylus along the record, just as the Disclaimer calls for a spinning roll *acting* gradually upon centrifugally *thrown out* fabric while *bringing* it into adhesive contact with the core. In both instances the claims call for the *doing* of something or, as said in *Expanded* v. *Bradford*, they call for "an act, or a mode of acting", and the said decision says that such an act or mode of acting is a "process". Again, in the cited decision, it is explained that the apparatus is "an object of perpetual observation" while the process is seen only by its effects "when being executed or performed". Surely, the fast speed rotation of the core, throwing out of the fabric by centrifugal force, the gradual action of the spinning roll upon the centrifugally thrown out fabric and the bringing of it into adhesive contact with the core can only be seen while these steps are "being executed or performed"; so that, necessarily, this language of the Disclaimer reads what this Court has expressly defined as a process into this claim of the patent in suit and, as the Disclaimer abandons the combination of mechanical elements recited in the claim except and unless they operate according to the terms just quoted, the said claim, which was nothing but a plain apparatus combination, has been changed by the Disclaimer to a method or process. For instance, a party might have a replica of the mechanical elements shown, described and claimed in the patent and yet, if he operated the machine slowly enough so that the

rotation of the core would not generate such centrifugal force as to throw out the unattached fabric, or if he employed a guard to prevent the fabric from being thus thrown out even though the core were rotated rapidly enough to generate adequate centrifugal force, he would not comply with the Disclaimer and would not infringe. Therefore, the Disclaimer, in a nutshell, says that the combination claimed in the patent is disclaimed except when it is being operated in a certain way or when it has, as this Court said, in the *Expanded* v. *Bradford* case, a particular "mode of acting". This amounts plainly to disclaiming the claim as an apparatus claim and asserting a monopoly under it as a process claim, since he now actually *claims* the "mode of acting" or, as Plaintiff calls it, the "mode of operation".

This argument applies equally to claims 4, 5, 6, 7, 22, 23, 24, 25 and 26; and even more strongly to the remaining two claims (12 and 13) for, with respect to them, the patentee has disclaimed all combinations of the recited mechanical elements "except for the combined operations of first, *stretching* the middle or tread portion of a previously unshaped fabric strip onto the recited ring-core and, thereafter, *shaping* and *applying* to the ring-core the fabric beyond the tread portion", and he further disclaims the mechanical combination unless the fabric is circumferentially stretched "under uniform tension while *applying* it to the tread portion", unless the "unapplied fabric * * * is thrown out * * * by the consequent centrifugal force", and unless the spinning roll "acts gradually upon the centrifugally thrown out fabric * * * while bringing it into adhesive contact with the core."

The two claims which constituted the subject matter of the decision of this Court in the case of *Leeds* v. *Victor, supra,* are particularly useful in determining this fact that the Disclaimer changes the claims of the State patent (at least in part) to method or process claims, because this proposition formed the substance of the opinion and decision in the said case, where it was held that they constituted distinct and separate inventions.

In the light of this comparison, how can it be said that Judge Davis was wrong in his dissenting opinion to the effect that the Disclaimer had, at least in part, changed the claims to a method?

There are numerous other facts which point to this same conclusion. For instance, it has been admitted by Plaintiff, in his brief below, that, in order to obtain the centrifugal force called for by the claims as modified by the Disclaimer, it is necessary to rotate the core at a speed somewhere between 80 and 120 R. P. M. He said (brief below, p. 35):

> "This centrifugal force is not manifest at all at a speed of less than 80 R. P. M. and it does not become effective until 'somewhere between 80 R. P. M. and 120 R. P. M.'."

and on page 37, it is said that a speed of 80 to 120 R. P. M. is "the minimum requirement". On page 49 of the same brief, Plaintiff became even more specific where, referring to a speed of 95 R. P. M., it was said to be "almost to the required high speed of core rotation". Surely, the rotating of a core at a speed above 80 R. P. M. and thereby generating centrifugal force is a step in a process. To maintain the contrary is utterly to disregard the fundamental distinctions laid down by this Court in *Expanded* v. *Bradford* and *Leeds* v. *Victor, supra.*

A very recent decision along this line is *in re Peters,* 289 F. R. 637, in which the Court of Appeals of the District of Columbia was considering an invention relating to a stirring apparatus for slaking lime. It was attempted to sustain the claim because of a clause stating that certain arms operated beneath the surface of the material being treated, and the Court of Appeals said:

> "The attempted limitation in the structural claims of the arms beneath the surface of the material treated belongs to process rather than structure. The amount of material in the container has nothing to do with the structural characteristics."

A claim for a machine cannot lawfully, by Disclaimer, be changed to a claim for a method or process. This is obviously true under the doctrine that machines and processes are different inventions. *Leeds* v. *Victor, supra,* and *Hailes* v. *Albany, supra.*

No such change is even authorized by Reissue. As said in *Heald* v. *Rice,* 104 U. S. 737, 753:

> "The case comes directly within the principle held in *James* v. *Campbell* (p. 341 *ante*) that a patent for a machine cannot be reissued for the purpose of claiming the process of operating that class of machines; because if the claim for the process is anything more than for the use of the particular machine patented, it is for a different invention."

To the same effect is *Grant* v. *Walter,* 148 U. S. 547.

IV.

The Disclaimer Unqualifiedly Cancels Claims that Include the Whole Substance of the Claims Sustained by the Court Below.

Paragraph Fourth of the Disclaimer unqualifiedly cancels claims 8, 9, 10, 11, 14, 15 and 17. Examination of claim 8 shows that it is directed to the same structure as claim 4 (sustained below) in almost identical language, except that 8 also includes "a radially movable tread-forming-roll for shaping the outer portion of the tire", so that in cancelling claim 8, Plaintiff cancels a claim that includes every element of claim 4, and which is narrower than claim 4 because it is limited by the additional element "tread-forming-roll". But the reason for filing the Disclaimer, as formally recited therein, is that the patent is in part "too broad". If claim 8 is too broad and has, therefore, been unqualifiedly disclaimed (which Plaintiff cannot deny), how can claim 4 be validly maintained. While individual claims have frequently been cancelled from patents by Disclaimer, we never before have seen a case in which the Disclaimer cancels the narrow claims and retains the broad ones. As claim 4 is well illustrative of the whole group of claims 4, 5, 6, 7, 22, 23, 24, 25 and 26, this argument, in substance, applies to all.

The same situation and same argument apply to claims 12 and 13 when considered with respect to claim 14 which has been unqualifiedly disclaimed, since the latter includes the whole substance of claims 12 and 13 with the addition of certain limiting details.

Plaintiff has, in fact, under pretence of cancelling claims which are too broad, cancelled narrow and worthless claims, while retaining the broader claims. Realizing that this could not be done openly, he has attached a myriad of words of interpretation to each of the broad claims retained, which interpretation serves in part to broaden the said claims by eliminating elements and in part to write new elements thereinto, in the effort to form a basis for reading the claims clear of the prior art, and, at the same time, making them cover Defendant. Plaintiff knew that such a procedure could not find success through the medium of a Reissue, because the latter is, by Statute, subject to the scrutiny of the Patent Office. He therefore chose a Disclaimer, which is filable in the Patent Office as of course. Surely, the Court below should not have countenanced this procedure, and should not have given weight to the alleged invention described in the Disclaimer, any more than did the Court of Appeals of the Sixth Circuit when the same alleged invention was urged as a matter of mere construction of the patent.

The Method or Mode of Operation Read into the State Patent by the Disclaimer was Old.

The plan of claiming novelty for State on the basis of his alleged method or process or mode of operation is not a new one with Plaintiff since, in the *Firestone* case, he realized the weakness of the State patent as a machine patent and endeavored to have the Sixth Circuit Court of Appeals construe

it as a method patent. That Court said (257 F. R. 82):

> "Plaintiff really presents his case on the theory that State discovered a new method of making tire casings or a new set of functions to be performed by associated mechanism."

and went on to say that the prior hand making of tires anticipated this method of State (257 F. R., p. 83):

> "The evidence that this identical spinning operation was performed upon tire casings by hand tools before State's invention is sufficiently satisfying to meet all the requirements of the situation."

In the *Firestone* case, Plaintiff did not deny that the hand spinning operation was the same as the method of State's patent. Indeed, he impliedly stated that it was the same by asserting that it was an "imitation" of the method of the State patent. His contention in that case was that this method was subsequent in point of time, and therefore, did not anticipate State. In his brief before the Sixth Circuit Court of Appeals, Plaintiff said:

> "Our second contention is that this procedure in hand operation was a mere feat suggested by and in imitation of the State invention."

The Sixth Circuit Court of Appeals ruled against Plaintiff on this point, and much additional testimony in support of this ruling was presented by Defendant in the present case, so that there is an overwhelming body of evidence which establishes the general use of this hand spinning method by the best known tire factories years prior to State's

alleged date of invention (Fall of 1907 or Spring of 1908). To meet this Plaintiff has now changed his ground to an argument that the hand process, though prior in time, was not the same as the process of the State patent.

The trial Court in the present case found as a fact:

> "The method or process used is the same which the proofs showed that for many years prior to the patent had been used in the making of tires by hand" (Vol. II, p. 399).

Duncan, president of the Hood Tire Company, showed that this method had been followed at his factory since the Spring of 1906 (Vol. I, p. 191 *et seq.*). This hand method has already been described in this brief on pages 2 to 7, so that we shall merely refer to the testimony here. This method continued in the Hood plant from 1906 to 1911 and 1912, and even after that it continued on the large size tires until the Summer of 1918, when the War Industry Board took the factory (Vol. I, p. 203, x-Q. 61).

The use of a similar method was described by Roe (Vol. I, p. 166), Consulting Engineer of the Republic Rubber Company. He is another man of standing, having been Assistant Engineer and Chief Engineer for the Diamond Rubber Company and its successor, the B. F. Goodrich Company. He described this process at the Diamond Plant in April, 1907, at the McGraw Tire Company as late as 1915 to 1917, and at the Republic Rubber Company as late as 1917 to 1919.

Mell (Vol. I, p. 152), Technical Advisor to the Superintendent of the Firestone Tire & Rubber Company, described this process at the Republic Company as early as 1906. There he was Manager

of the Tire Department and Experimental Engineer.

Stark (Vol. I, p. 125), General Foreman of the Tire Department of the Miller Rubber Company, described this method as followed by him and others at the Diamond Rubber Company beginning as early as 1903. He showed that this method was also followed at the Miller plant after he came there.

Walch (Vol. I, p. 285), Foreman of the Tire Department of the Ajax Rubber Company, told of this same hand spinning process at the Ajax Company as early as the year 1906. He said that he personally followed this process for five years beginning in 1906 and saw others doing the same.

Testimony to the same effect, was given by Green (Vol. I, p. 135), Curtis (Vol. I, p. 293), Koplin (Vol. I, p. 92), Drach (p. 99), Derry (p. 107), Heller (p. 115), Gregg (p. 146) and Bittaker (p. 173). Gregg employed a power-driven-core in this operation at the Diamond plant as early as 1907 (p. 148). He is corroborated in this by Bittaker (p. 176).

All testified that the fabric was stretched circumferentially on the core, that the core was then rotated fast enough so that the fabric spread out from the sides and that the operation of spinning down the fabric thus standing out was successfully accomplished in commercial practice for the production of the regular output of tires.

Plaintiff's counsel was zealous to have the witnesses admit that there was also another method of making tires by hand, which he called the "saw-tooth" method, although the importance of this is not clear, since if it were a fact that there were a half dozen other methods of making by hand,

it would not negative the force of the fact of the hand spinning practice as an anticipation of the method which plaintiff has sought to read into his State patent.

As already indicated, the Court of Appeals for the Sixth Circuit found that this prior hand spinning was "identical" with the method attributed by Plaintiff to the State patent. The decision of the majority of the Court below, holds that the method of the State patent differs from the hand method because the core was rotated faster by the machine than by hand and thereby generated centrifugal force which automatically stretched the fabric edges radially so that they would smoothly fit the sides of the core. See quotations, *supra*, p. 37. This is the sole point of difference which the Court below finds between the hand process and machine process, and is the point upon which it bases its disagreement with the Court of Appeals for the Sixth Circuit, the District Court of New Jersey, and the dissenting member of its own bench.

In presenting his argument to the Court below, Plaintiff contended that this hand process was not the same as the process of the patent in suit on the ground that the tires made by the hand process did not have any radial stretching of the side portions of the fabric. Plaintiff maintained that the hand-made tires had circumferential stretch and that tires made on the State machine had both circumferential and radial stretch of the fabric. He therefore called the hand operation a "single stretch" method, and the machine operation a "double stretch" method. It is unnecessary to discuss this point at any length with reference to the evidence discrediting it, including plaintiff's exhibits of tires

made by hand-spinning; or to emphasize the fact that the patent in suit does not mention anything about radial stretch or double stretch, because the Court below has disagreed with this position of plaintiff and explicitly held that the hand process involved the double stretch. It is said in the opinion below (Vol. II, p. 404):

> "we note the fact that tires embodying these two features of double stretch and roll-spinning fastening were, before the patent to State here in question, hand made."

Nor does the Court below deny that, in the hand-spinning method, the loose edges of the fabric, referred to as "the flying skirt", were thrown out from the core by the centrifugal force inevitably generated in the rapid rotation by hand. The evidence on this point is overwhelmingly in favor of defendant. Duncan, President of the Hood Tire Company, testified as follows (Vol. I, p. 195):

> "Q. 12. While the core with the fabric on it was rotated, as you have described, what position did the edges of the fabric take or maintain?"
>
> "A. The fabric stood out at approximately right angles to the plane of the core."

Heller testified (Vol. I, p. 117):

> "Q. 21. When the core was spinning fast, what position did the edges of the fabric take?"
>
> "A. Straight out."

Testimony to the same effect is given by nine other witnesses (Vol. I, pp. 93, 100, 107, 137, 148, 154, 177, 286, 294). There is no evidence to contradict this showing.

From the foregoing, it is seen that there is no conflict between the two Courts of Appeals as to the fact that the hand-spinning method did produce both circumferential and radial stretch. It is also seen that the Court below does not dispute the abundant evidence to the effect that the rotation of the core by hand caused the skirts of the fabric to fly out. This necessarily results because of the centrifugal force generated by the rapid rotation (Vol. I, p. 154). Nobody disputes the fact that, in the hand-spinning method, the spinning roll or stitcher was moved radially in contact with the fabric so as to shape and smooth the outflying skirts to the sides of the core.

Therefore, we come right back to the one point upon which the Court below has based its decision, viz., that, in the method of the State patent, the core was rotated so fast that it generated centrifugal force of such strength that the fabric skirt *stretched itself radially* and formed thereby radial, diamond-shaped interstices, which contracted the normal length of the fabric (*supra*, p. 37).

While agreeing that the same radial stretching was accomplished by hand and by machine, the Court below says that the machine did it by centrifugal force and the hand operation did it by the spinning roll; and upon this distinction, decision in favor of Plaintiff has been grounded. But how can it legitimately be maintained that the spinning roll did this work in the one case and not in the other? In his understanding of the machine process, Judge Buffington attributes to the spinning rolls merely the function of plastering or cementing to the sides of the core the outflying skirt of the fabric which has been radially stretched by the centrifugal force resulting from the high-speed rotation

of the core. Thus, he says in his opinion, referring to State (Vol. II, p. 408):

> "Thereby he then, and by the wheels [spinning rolls] pressed and cemented the radially stretched and therefore puckerless fabric against the lessening sides of the shoe clear down to the bead edge."

And again he says that the spinning rolls were caused:

> "to automatically press the automatically stretched and loose fabric, or skirts, in an unwrinkled state, on the bead of the lower surface of the core."

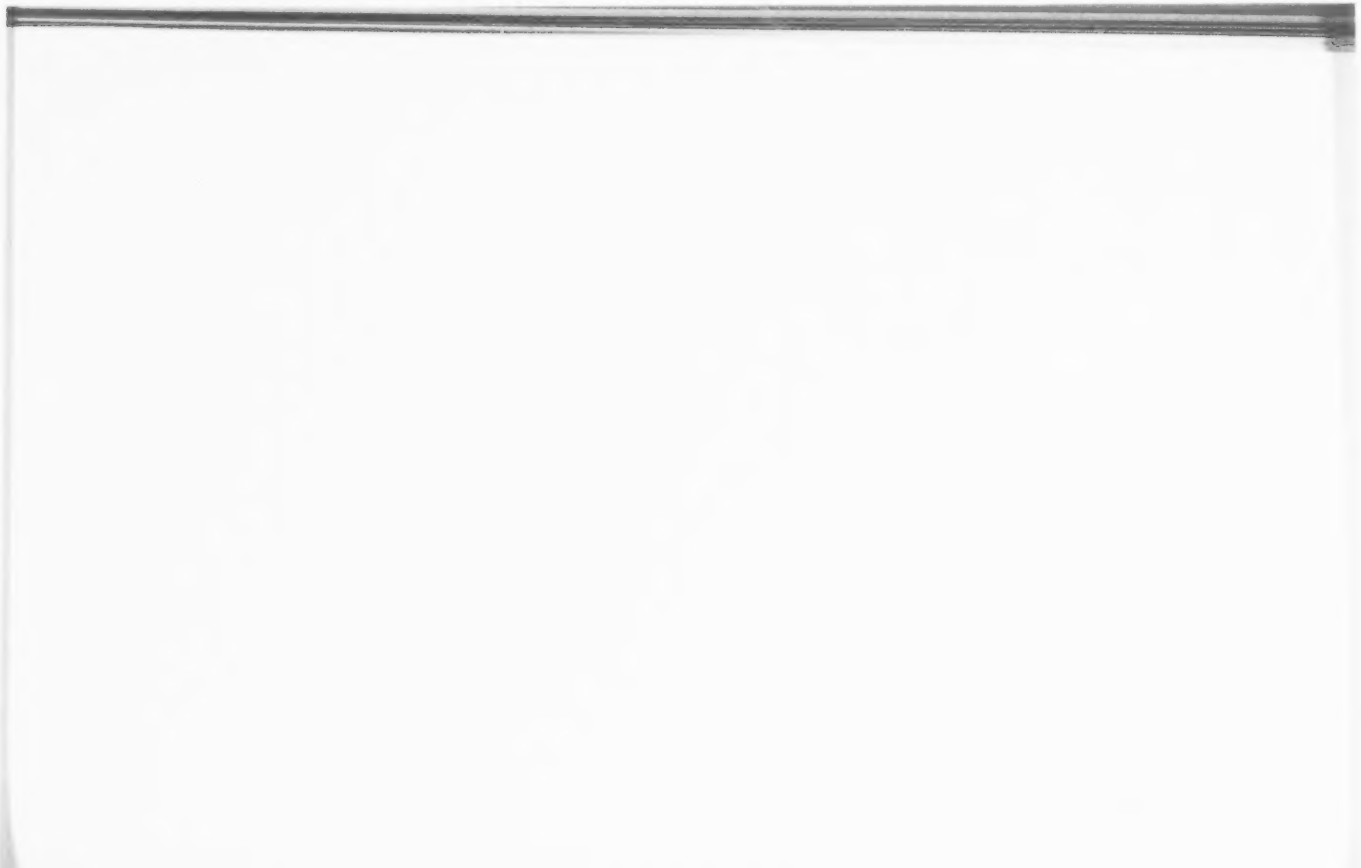
And on page 411, he says that the rolls

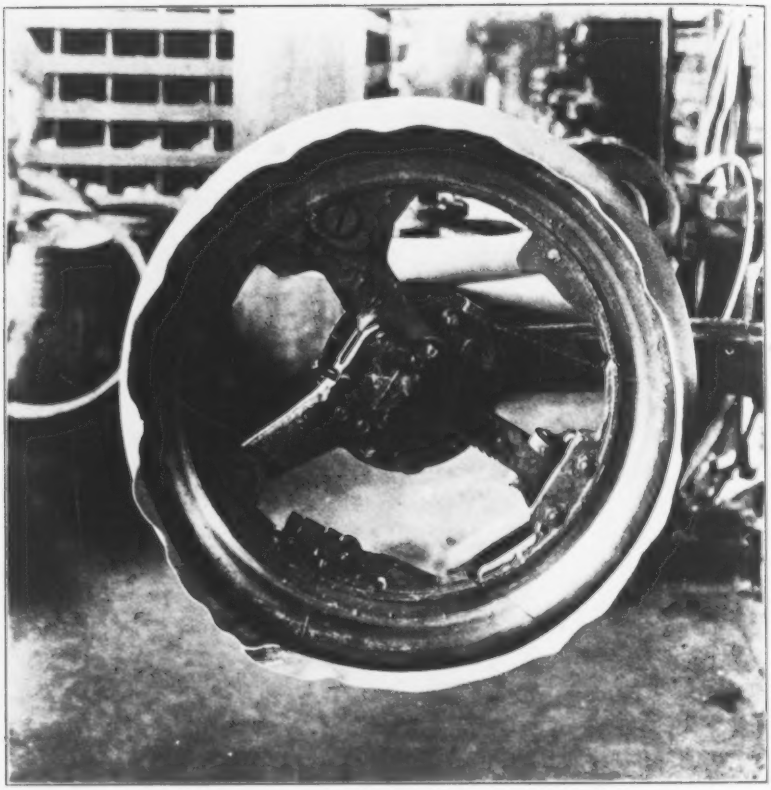
> "plaster an unpuckered, radially distended diamond shaped fabric upon the core."

And again he refers to

> "the utilization of centrifugal force to stretch the fabric and the action of the spinning rolls upon a centrifugally automatically stretched fabric,".

Perhaps it would be sufficient to point out that not even Plaintiff has contended that centrifugal force stretches the fabric. He has only argued that centrifugal force causes the fabric to stand out from the core and that the inward radial movement of the spinning rolls produces the radial stretch against the action of centrifugal force; and has, in the present case, distinguished the hand-spinning method from the machine method on the contention that the spinning roll in the hand method did not produce any radial stretch. As already noted, his own exhibit tires (*e. g.*, Tire





M-9) are conclusive against him on this point, not to speak of much other evidence in the Record, and the Court below has found against him, so that we do not need to argumentatively contest this matter.

But to treat the subject thus briefly would not be fair to the learned Judge who wrote the majority opinion of the Court below and who has based his decision upon an erroneous conception of the processes. This erroneous conception may well have arisen from the fact that Plaintiff has cleverly harped so much upon the expression "centrifugal force" as to render likely confusion of thought on this point, although, at all times, plaintiff has been careful never to contend that the centrifugal force itself produced the radial stretch.

There is, in fact, not a word in the Record to support this holding of the Court below. No one testifies that centrifugal force, *per se*, could produce any radial stretch and, although reference to centrifugal force is repeatedly and confusingly made in the testimony of Plaintiff's expert Browne and in Plaintiff's brief below, in neither place is there any statement that centrifugal force produces the radial stretch. This error, if not at once apparent, can be demonstrated by the opposite picture:

This shows a core with the fabric stretched on the tread portion thereof and its free edges standing out from the sides of the core. When the core is rotated rapidly, centrifugal force will be pulling outwardly at all points on the circumference of the edges of the fabric, and it must be plain, therefore, that this outward pull will tend to enlarge the circumference of the edge of the fabric. This is absolutely inevitable—but this is also a

tendency toward *circumferential* stretch of the said fabric edges, instead of *radial* stretch. Therefore, if the centrifugal force were sufficient to stretch the fabric at all, it would enlarge the circumference of the loose fabric edges and make them less adapted to smoothly fit the inner side portions or bead zones of the core. This circumferential stretch would also change the square meshes of the fabric into meshes of diamond shape, but with their axes *circumferentially* disposed instead of radially disposed. No physicist has denied this and no physicist could deny it. If the centrifugal force were to have any effect toward producing radial stretch and consequent circumferential contraction, as stated by Judge Buffington, it would be necessary that its force be exerted inwardly toward the axis of the core which is, of course, impossible.

This situation called for a Petition for Rehearing which was duly filed, together with a Motion to Remand the case for testimony in the District Court, in case the Court of Appeals did not accept Defendant's proposition that the decision was based upon a misapprehension of the action of centrifugal force (Vol. II, p. 417). This Petition and Motion were denied, without opinion (Vol. II, p. 432), and we wish to make reference to the affidavits filed in support of the same, not with the thought that these affidavits constitute evidence in the case, but to show the *prima facies* of the Petition and that the same should have been granted.

In his affidavit, Dean Pegram, of Columbia University Engineering School, after referring to Judge Buffington's opinion and quoting therefrom, and discussing the necessary action of centrifugal

force under the circumstances in question, said (Vol. II, pp. 426, 427):

> "With all respect, I am compelled to state that the effect of centrifugal force in distorting the mesh of the band of fabric would therefore be the opposite of that stated in the opinion.
> "I may say further that it does not appear to me that the centrifugal force at such speeds as are used by the Plaintiff would be great enough to produce any appreciable distortion of the mesh of this rather firm fabric."

Professor Kavanaugh, of the University of Pennsylvania, after referring to Judge Buffington's opinion and his own observation in a tire factory, and explaining just how centrifugal force does act, said (Vol. II, p. 424):

> "I am compelled to state, with the greatest respect, that the numerous references in the opinion of his Honor, Judge Buffington, to the radial stretching effect of centrifugal force, necessarily imply a misinterpretation of the physical force at work, since its action is the opposite of that recited in the opinion."

He also said, by way of illustration (Vol. II, p. 424):

> "Furthermore, the amount of centrifugal force which is generated as a result of rotating a core adapted for making a tire about 35 x 4½ in size at 130 R. P. M. is insignificant and utterly impotent to produce any stretch in the outflying skirts of the fabric. It actually amounts, in a tire of the size stated, to approximately 0.168 ounces for each square inch of fabric in the flying skirt. The circumferential stress or pull developed in the skirt by this centrifugal force is only 2.562 ounces

> per inch of the skirt width. I have made tensile tests of this fabric which show that a stress or pull of this amount stretched or elongated the fabric less than 1/8 of 1 per cent.; which is a negligible amount, and which is, moreover, against radial stretch."

Professor Anderson, of Stevens Institute of Technology, after making similar remarks, said (Vol. II, p. 428):

> "With great respect, I am positive in the assertion that, under the conditions of tire manufacturing described, centrifugal force can have no tendency to cause the fabric to stretch itself radially and thereby form radial diamond-shaped interstices which contract the normal length of the fabric, as stated by his Honor, Judge Buffington."

Now, it cannot be that these three scientific men are wrong and Judge Buffington right.

The Court below recognized that the prior hand process had produced both the circumferential and radial stretch. The evidence was overwhelming and uncontradicted that the rotation of the core in the hand process had caused the fabric to fly out at right angles so as to resist the inward, radial movement of the spinning tool. But Judge Buffington found that in State's machine process, the rotation of the core was so "speeded up" that the centrifugal force generated thereby caused the fabric to "stretch itself" radially, so that all the spinning rolls had to do was to "plaster" this "automatically stretched" fabric onto the core (*ante*, pp. 37 *et seq.*).

In this he was fundamentally wrong, as cannot be denied.

It should be noted that there was no burden on Defendant to disprove this holding of the Court below that centrifugal force produced the radial stretch in the machine process and that all the spinning roll had to do was to plaster or cement the centrifugally radially stretched fabric on the sides of the core. There is not a word in the patent about any such thing, and Plaintiff did not make such contention; so that there was never cause for Defendant to disprove this finding of the Court of Appeals of the Third Circuit.

This brings us right back to the proposition that the hand-spinning method had the rapidly rotating core, the edges or skirts of the fabric outflying under centrifugal force, and the spinning roll moving radially inwardly and producing radial stretch in the fabric to conform it to the core; so that the only thing left is the statement that State "speeded up" the rotation of the core in the process attributed to the patent. It is true that the patent names a very high speed of rotation—207 R. P. M. Defendant does not use anything above 125-130 R. P. M.; and neither does Plaintiff. Hence, this high speed named in the patent cannot be relied upon to sustain Plaintiff's case, and there is left merely the moot point that the rotation of the core by the machine was somewhat faster than its rotation in the hand process. Even this is expressly denied by some of the witnesses who testified with regard to hand spinning. Thus Walch, for thirteen years Foreman of the Tire Manufacturing Department of the Ajax Rubber Company, said (Vol. I, p. 291):

> "x-Q. 53. Do you think the speed of rotation that you gave the core by hand was as great as that now present in the operation of the

> Thropp machine? Do you understand the question?
>
> "A. Well, it is very near the same; there was not much difference; you can twist the core just as fast as the Thropp machine."

Stark, General Foreman at the Miller Rubber Company, testified to the same effect (Vol. I, p. 129):

In view of the fact that the result produced by the hand-spinning method and by the machine was the same (as the Court below agrees), and that there is not any evidence to support a holding that, in the method attributed to the State patent, the radial stretch was produced by centrifugal force and not by the spinning roll, it might be assumed to be true that the machines rotated the core more rapidly than the hand process and still this would amount simply to a difference in degree which, under all the authorities, does not constitute invention.

As said by this Court in *Wright* v. *Yuengling*, 155 U. S. 47, 52:

> "it is a mere difference in degree, a carrying forward of an old idea, a result, perhaps, somewhat more perfect than had theretofore been attained, but not rising to the dignity of invention. We have repeatedly held patents of this description to be invalid."

And in *The Railroad Supply Company* v. *The Elyria Iron and Steel Co.*, 244 U. S. 285, this Court said:

> "the mere carrying forward of the original thought, a change only in form, proportions

or degree, doing the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent."

Plaintiff's *Ex Parte* Tests of the Hand Spinning Method Support Defendant's Position.

Plaintiff endeavored to show by test some substantial difference in strength between tires made today by the hand spinning process and tires made today on one of the Goodyear Company's commercial tire making machines. As this test was *ex parte* and conducted by Plaintiff, the results can, of course, be used with full force against him, while they are of very little weight in his favor. *Bemis* v. *Charles*, 177 F. R. 717; *Bethlehem* v. *Niles*, 166 F. R. 880, 888 (aff. 173 F. R. 1019); *Mark* v. *Greenwalt*, 32 App. D. C. 253.

The man selected to make the tires by hand was a building contractor who had not been connected with the manufacture of tires for about ten years (Vol. I, p. 419, x-Qs. 31-41). He had, however, at an early date, made these tires by the hand spinning method at the Diamond Rubber Company, and Plaintiff said in his brief below (p. 67) that these tires "were made by the hand spinning method in the way he formerly made them in the Diamond plant", so that whatever success was obtained in this hostilely conducted test not only weighs heavily against Plaintiff, but must be attributed to the quality of the tires made at the Diamond plant prior to State's invention. Furthermore, it is reasonable to suppose that this witness made the tires

better when he was actually engaged in that work than he did after a layoff of ten years.

It is sufficient, without pointing out the many discrepancies in these tests unfavorable to defendant, to state in concise form certain results which plaintiff cannot dispute.

Examination of these tires made by hand spinning will show that they embody the so-called "double stretch". As noted (*supra*, p. 92) the Court below agrees that the hand spinning process does produce this.

After these tires were made, they were tested by subjecting them to internal hydraulic pressure until they burst, corresponding tests being given the machine made tires. The hand made tires burst at the following pressures in pounds: 395, 393, 393, 392, 391, 396, 391, 408, 364, 358, making an average of 388.1; and the machine made tires burst at 480, 450, 421, 405, 442, 408, 462, 424, 409, 449, 464, 425, making an average of 433.75 (Vol. I, p. 538). One of Plaintiff's experts (Ray) says that the difference between the two sets of tires is 12 per cent. (*id.*, p. 539).

As the ordinary pressure for tires of this size when in use is admitted to be only 75 to 80 pounds (Vol. I, p. 579), this difference in the bursting pressure of the two sets of tires is immaterial and a mere paper difference; since the figures show that the hand made tires would stand an internal pressure of five or six times that to which they would be subjected when in use.

These figures also show that the hand made tires were much more uniform than the machine made, there being a difference of only 50 pounds between the highest and lowest of the hand made tires, while there is a difference of 75 pounds between the highest and lowest of the machine made. Following

out the method of calculation employed by Plaintiff's expert Ray, this means that the hand made tires were 50 per cent more uniform than the machine made. This uniformity in the hand product is quite striking when it is observed that seven out of the ten tires burst at a pressure between 391 and 396 pounds.

Again, the metallic bead rings which are built into these tires for service will only stand a pressure of from 350 to 360 pounds (Vol. I, p. 539, Q. 57). Every one of the hand made tires burst at a pressure equal to or above this, the average approximating 30 pounds above. Hence, the fabric of these hand made tires was stronger than the regular beads that hold the tires onto the vehicle rim, so that, in use, the beads would have given way before the fabric.

Finally, every one of these hand made tires burst in the tread portion (Vol. I, p. 578, x-Q. 202). Not a single one of them burst at any point on the side where the fabric had been formed down by the hand spinning process, so there is nothing in these tests to show that the fabric spun down by hand was any weaker than that spun down by machine.

From the foregoing, we find that these tests made by Plaintiff demonstrate that the hand spinning of tires is practical and satisfactory, that the product is in strength well beyond that required under any conditions of service and, in uniformity, much superior to the tires made by the Goodyear Company's commercial machines which Plaintiff alleges embody the State patent. **By this evidence also Plaintiff's criticisms of the hand spinning method are shown to be unfounded. His assertions that this was a single stretch process, that great skill was required, that the process was not**

applicable to large tires, that the core speed was irregular and too low, that the roll pressure was irregular, that there were other defects, such as the slipping or jumping of the spinning roll, and that the tire quality was poor, are all flatly contradicted and demonstrated to be unsound by his own self-appointed tests. Surely, if a biased operator running the commercial machines of today could only make tires which were 12 per cent stronger than tires produced by the hand spinning process carried out by the one employed by Plaintiff, and who had not made a tire for ten years; and if the said hand made tires were 50 per cent more uniform than the machine made tires, were stronger than the metallic beads embodied in corresponding commercial tires, and would stand a pressure of five or six times that required in use; there can be no legitimate criticism directed at this hand spinning method.

Putting this situation in the best light for Plaintiff, it shows nothing more than a change in degree coming directly within the cases cited on page 100, *ante*. The fact that the machines could doubtless make the tires faster (though Plaintiff does not emphasize this point) does not alter or tend to alter the fact that the hand spinning method is the same as the method followed by the machine and that, therefore, no novelty or patentability can be attributed to the machine because of the method which can be followed in its operation (*Marchand* v. *Emphen*, 132 U. S. 195; *Conroy* v. *Penn*, 155 F. R. 421, 422, 423; affirmed 159 F. R. 943. In this position, we are directly supported by the decision of the Court of Appeals for the Sixth Circuit and the District Court of New Jersey.

The Step Covered by the Claims.

In his opinion, combatting the decision of the Court of Appeals for the Sixth Circuit, Judge Buffington refers to the alleged process of making the tires by the machine of the State patent and emphasizes the position that the issue does not relate to an operation performed on a part of the tire. He says (Vol. II, p. 407):

> "We are not dealing with the making of the tread portion of a tire alone, and with its consequent necessary circumferential stretch and the formation of circumferential diamond shaped interstices in the fabric in such tread portion. We are not dealing with the making of the median zone of the shoe [tire], with the interstices square and unstretched. Nor are we dealing with the making of a bead zone where the stretch is radial and the interstices are radially pointed diamond shaped."

This understanding and emphasis of the learned Judge is submitted for particular consideration in view of the fact that Plaintiff's case is based upon the proposition that the claims, as limited by the Disclaimer, do cover nothing more than a single one of these steps, namely, the radial stretching and formation of the fabric in the bead zone, *i. e.*, "beyond the tread portion". As stated by plaintiff in his brief below (p. 6):

> "The only thing here involved (except in claims 12 and 13) is only one of these sequential operations.
>
> * * * * * *
>
> "There is no longer any claim on the original stretching or tension devices. There is no longer any claim on the tread-forming roller.

> These have dropped out of the case either by intentional omission or as a result of the statutory disclaimer. The only thing here advanced is the combination of the forming or spinning-roll with the high-speed core."

And the Disclaimer itself disclaims any combination of the claims except

> "for shaping and applying a previously unshaped sheet fabric strip to that part of the recited ring-core beyond the tread portion" [*i. e.*, the bead zone].

Of course, the question here at issue is the subject matter of the claims as they stand, and the decision of the Court must necessarily be based thereupon. How can the Court be justified in waving aside these facts and grounding a decision in favor of the Plaintiff upon things which he has formally disclaimed?

The Claims in Suit are Anticipated by Belgian Patent to Matherne.

(Vol. II, pp. 217-227.)

This patent was granted September 20, 1906. The Court of Appeals in the *Firestone* case made reference to it particularly with respect to its method of operation, because that was the basis upon which Plaintiff staked the validity of the State patent; and the Court, after carefully observing the Belgian machine at work, held that it operated "to stretch and re-shape the fabric in substantially the same way that is done by State" (257 F. R. p. 84).

Plaintiff resists the anticipatory effect of this patent upon the assertion that the described mode

of operation is different from the mode of operation attributed by his expert to the State patent. He reads into the State patent a mode of operation not described therein and contradictory to the description therein; then reads into the Belgian patent a mode of operation different from that described therein; and says that, because of the difference in these assumed modes of operation, the Belgian patent does not anticipate the State patent. **Plaintiff is unable to deny that the Belgian patent shows a machine for making the same kind of tires as the State patent; which machine contains the instrumentalities of the State patent, and can be operated according to the mode of operation which he reads into the State patent.** He is unable to deny that it fully anticipates all the claims in suit, except as they are modified by the Disclaimer.

In the present case, this patent has been pleaded in the regular way and proofs taken with respect thereto. A full size machine is also in evidence. This machine is well shown in the photographs which constitute Defendant's Exhibit D. Waterman describes the construction and operation of the machine of this patent beginning Vol. I, page 241.

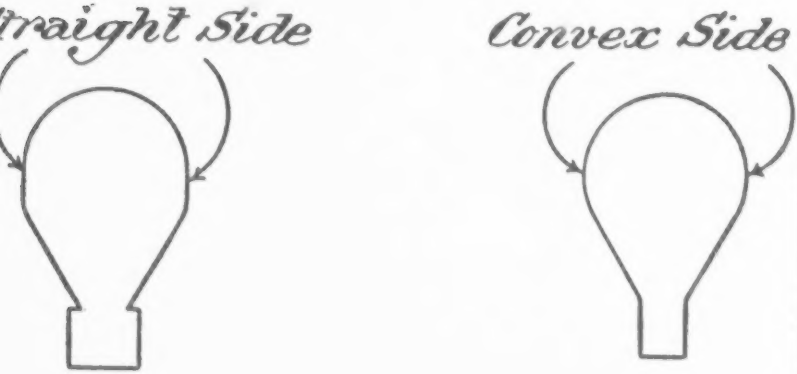
As a matter of convenience, a brief description of the Belgian patent will now be given.

Referring to Fig. 1 of the drawings, the machine includes a core 10, which is of the same kind as that in the State patent and which is likewise mounted for rotation. Power mechanism and gear changing mechanism are provided for rotating this core at low and high speeds. Rubberized canvas strips are drawn from the stock roll 18, at the right, onto the core, passing between oval or

spherical rolls 26 and conical gears 36 located between the stock roll and the core. The convex shape of these rolls is intended to slightly stretch or lengthen the center of the fabric so as to make it fit better to the tread of the core, while the gears are described as forming slight puckers uniformly arranged at the edges, so as to insure that the subsequent contraction of this part of the fabric in shaping it to the core shall be uniform. They also hold the edges of the fabric out laterally and prevent them from sticking to the sides of the core while being drawn thereon.

The stock roll is mounted on a shaft provided with a band brake, shown in Fig. 2 at 21, 22, 23 and 27, which may be adjusted to produce the desired pull on the fabric strips. The core as in the State patent is coated with rubber solution so that the tread portion of the fabric adheres to it and is pulled along by the core in its rotation. This machine does not have State's tread forming roll 141, but, as defendant's machine does not have any such roll, this point is immaterial in this case. The Belgian patent does, however, have a pair of rollers 30 shown in Figs. 2, which act upon the sides of the core adjacent the tread. The patent says that these rollers reciprocate so as to stick the fabric to the *straight* or *convex* sides of the core. These two types of core are well represented by the two patents originally in suit. The State patent shows, in Fig. 9, cores which have a rounded or convex side portion before they taper off in a straight line toward the inner circumference; while the Seiberling and Stevens patent shows in Figs. 5, 6 and 8 a core, the side portions of which are flat before

they taper off toward the inner circumference (Vol. II, pp. 264, 266). See following cuts:



While the Belgian suggests that these rollers be operated on just this portion of the sides of the core, he also states that this operation may be varied according to the desire of the operator, saying "the roller may be placed at any desired point on the core". To this end he mounts the rollers in an adjustable casing 28, which is slidable on the track 34. In operation, the rubber impregnated fabric is led from the stock roll around and between the rolls 26 and gears 36, and the end of the fabric is stuck to the core. The core is then caused to rotate at slow speed and draw the fabric along with it under such "pull" as the operator has predetermined by adjustment of the brake mechanism. During this slow rotation of the core, the canvas encounters the rollers 30 which are rapidly reciprocating on the convex or straight sides of

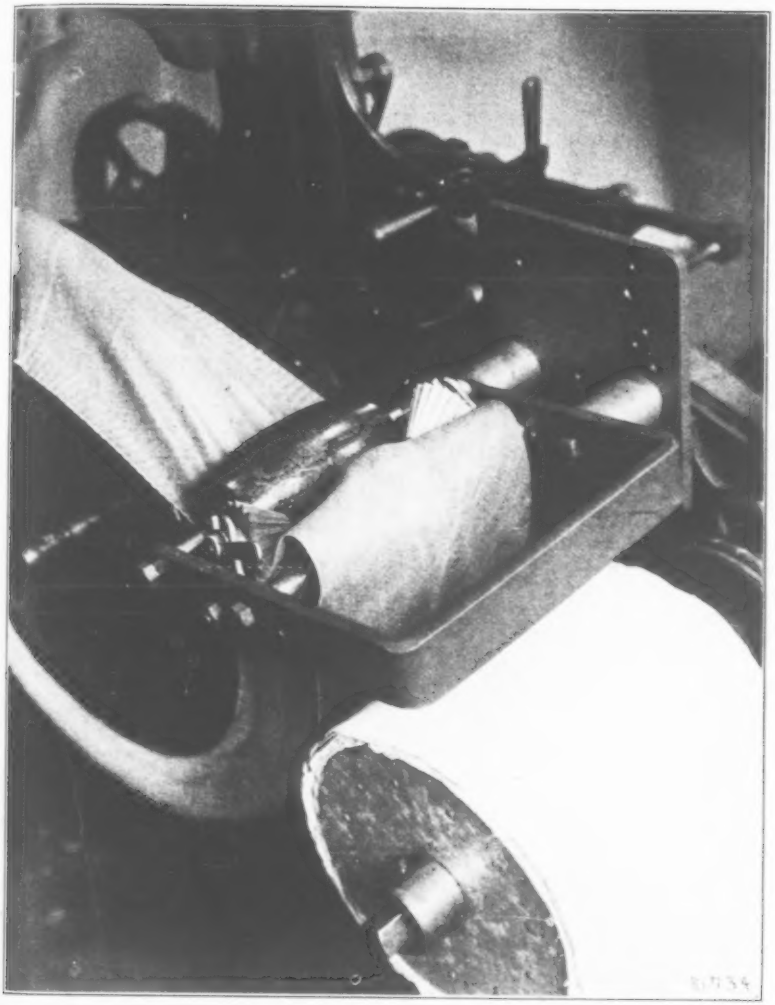
the core as just described, according to which kind of core is being used. The drawing of the fabric onto the core causes it to shape itself to the tread portion of the core, while the action of the rollers 30 is to stick the fabric to the side portion adjacent the tread. The operation of this machine is clearly illustrated by the set of photographs, Defendant's Exhibit D, which have not been criticised by plaintiff.* The condition of the fabric as it is first being drawn onto the core is well shown in photograph No. 6, opposite. Observe how the conical gears hold the fabric edges away from the core.

The condition after a single layer has been completely stretched around the core is illustrated in photograph number 7 and the condition after the rollers 30 have operated on it, in photograph No. 5. In this case the rollers 30 have been adjusted to act pretty far inwardly. Thus these rollers cause the fabric to adhere to the side portions of the core and, at the same time, form puckers or corrugations or wrinkles in the skirts of the fabric. These puckers are initiated in the form of large, loose puckers by the mere stretching on of the fabric, as shown in photograph No. 7, but the action of the rollers 30 in sticking the fabric to the sides of the core, decreases the size and increases the number of the puckers (photograph No. 5). These puckers are also clearly shown in the photograph of the Goodyear commercial machine said by Plaintiff to embody State's patent (Vol. II, p. 191).†

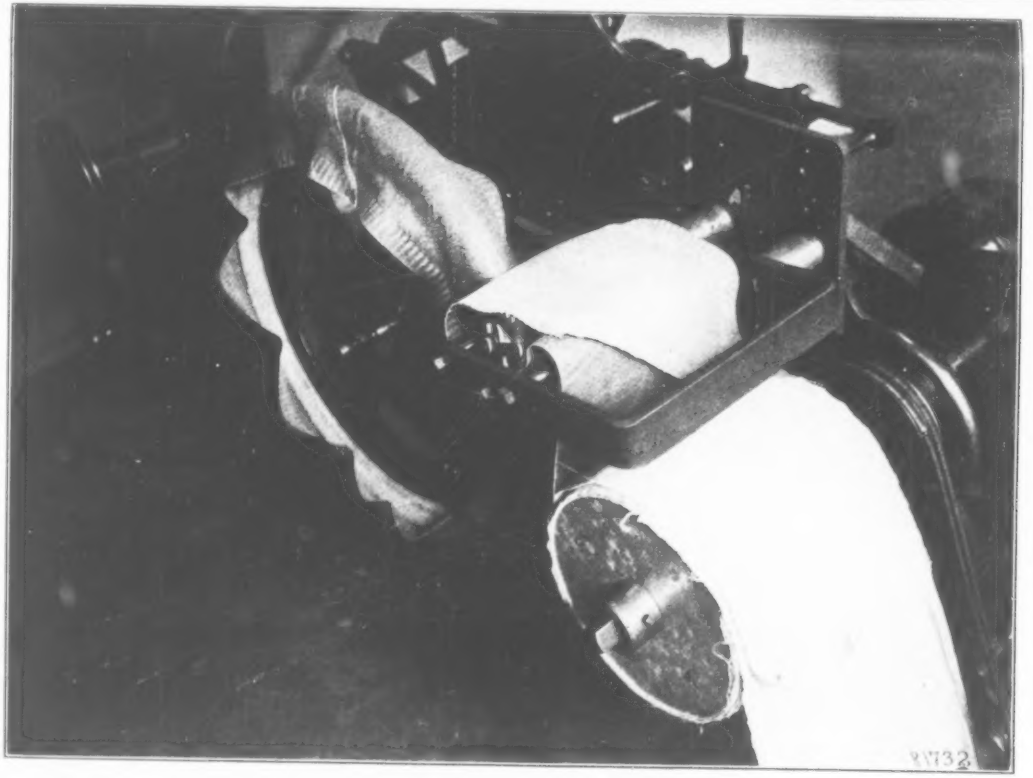
In the next step the carriage on which the rollers 30 are mounted is drawn away, and the drive gearing for the core is changed so as to rotate the latter

* None of the following photographs show the fabric flying out under the influence of centrifugal force because they were necessarily taken while the machine was still.

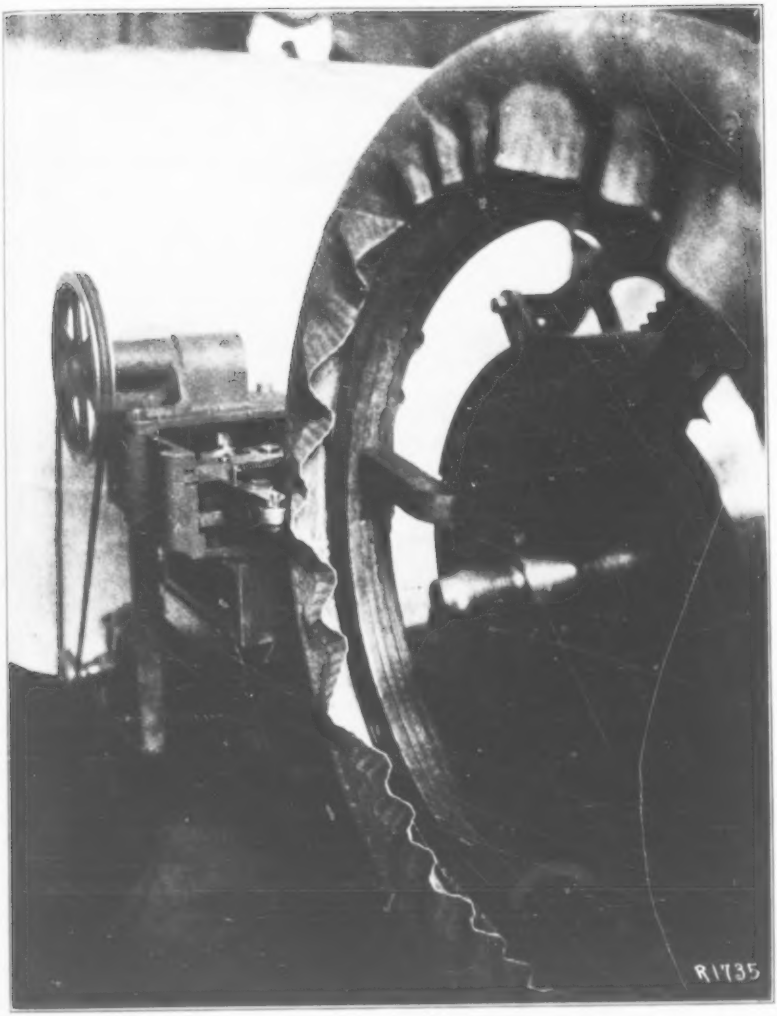
† Reproduced *supra*, page 45.



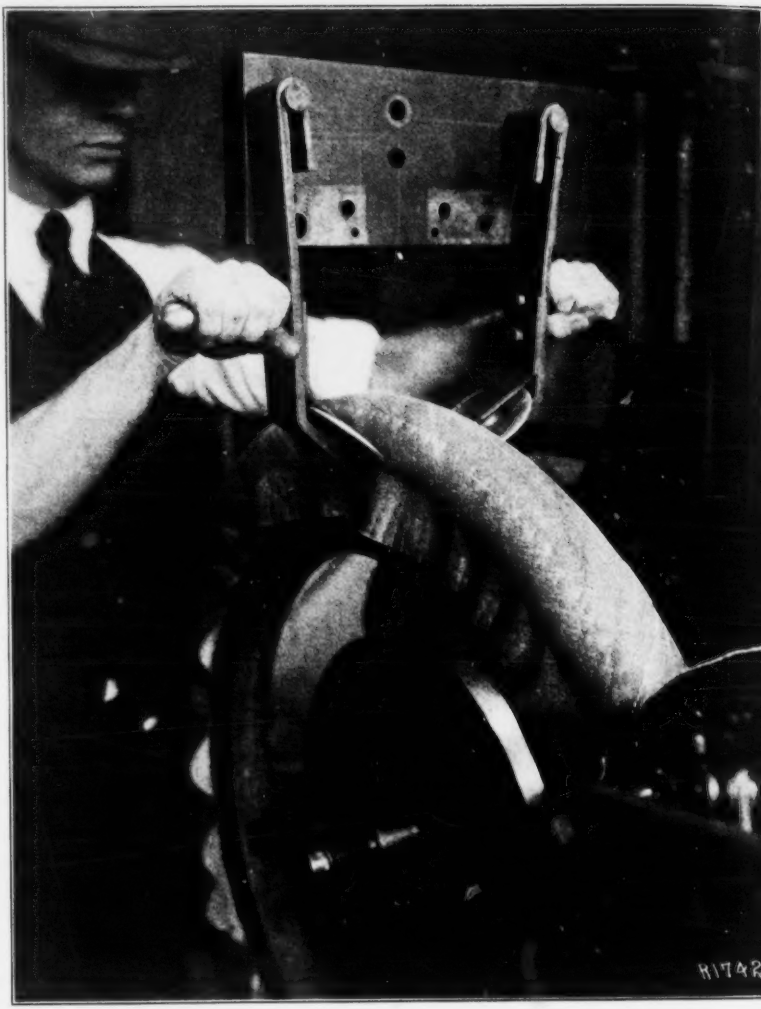
Photograph No. 6



Photograph No. 7



Photograph No. 5



Photograph No. 10

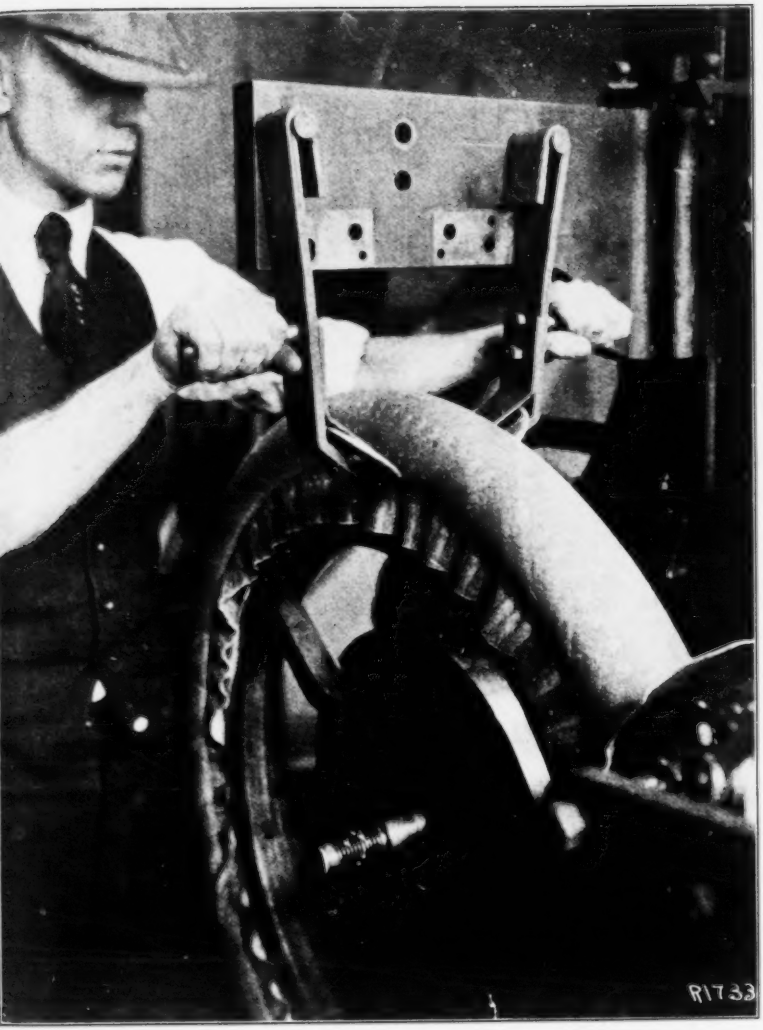
rapidly, as stated in the Belgian specification (Vol. II, p. 221). The ratio of rotation of low speed to high speed is about 1:20. This is about midway between the ratio of the State patent in suit (1:35) and the ratio of the commercial machines and defendant's machine (1:10 or 15), Vol. I, page 55, x-Qs. 34, 35. Both the low and high speed of the Belgian machine can be varied by applying the drive belt to different parts of the pulley 3 (Vol. I, p. 245).

The high speed inevitably throws out the puckered or wrinkled edges or "skirts" of the fabric at an angle to the core. This is an inherent condition in the physics of the thing. It is during this high speed rotation that the Belgian plans to remove these puckers or wrinkles. He, like State, provides for this purpose a pair of spinning rollers such as shown in Fig. 6 of the patent drawing, and in photograph No. 10, of Defendant's Exhibit D, opposite. These rollers have rounded, disk-shaped edges, as called for by the State patent, and they are also carried by arms which are supported on a slide 17 that is fed radially of the core by a screw, plainly shown in Fig. 1, and which has on its upper end a hand wheel. The arms of those spinning rollers are hooked on the pins 15, carried by the slide 17. The screw engaging the slide 17 may be operated by the hand wheel at the top thereof, but the patentee provides a pawl and ratchet mechanism which is designed to automatically feed the slide 17 radially of the core. Thus, while the core is at its high speed rotation, the spinning rolls are fed inwardly radially of the core while pressed laterally against the sides of the core by the hands of the workmen grasping the handles projecting from the arms that support the spinning rolls. This action, at its initial stage, is well shown (Except that the

core is still) in photograph 10 *ante*. A later stage of the same operation is shown in photograph 11, and the final stage is shown in photograph 12.

The photographs referred to correctly show the operation (Vol. I, p. 241, Q. 29, p. 242, line 32). The patent distinctly states that the high speed is "necessary" for the spinning step (Vol. II, p. 218, line 10 from bottom). It seems useless to describe this machine any further, since the above includes all the instrumentalities as well as the mode of operation upon which Plaintiff relies in support of his State patent. We may apply one of the more detailed claims in suit (considered as a claim for apparatus) to this Belgian patent, inserting the corresponding features of the Belgian machine after each element of the claim. Selecting claim 12, the application is as follows:

> 12. An open tire-shoe making machine (obviously the Belgian machine is this) comprising the combination of a stock roll for carrying a strip of sheet-fabric (stock roll 18), a ring core (core 10), a slow speed mechanism for actuating the core when receiving the fabric from the stock roll (sets of gears running from the pulley 3 to shaft 13 and back to core shaft 12), a radially moving spinning roll for passing radially over the side of the tire-shoe to shape the fabric on the core (roll of Fig. 6 and radially moving slide 17 which carries it), fast speed mechanism for actuating the ring-core during the operation of the spinning roll (connection from pulley 3 to shaft 11 and thence through gearing direct to shaft 12) and speed-changing mechanism (lever 14 and connected parts), substantially as described.



Photograph No. 11

Photograph No. 12

It is true that the Belgian patent does not have springs for forcing its spinning rolls laterally against the core, but even Plaintiff has made no point of this as the State patent says it is intended to be broad enough to cover the use of a tool pressed against the core by hand (p. 5, line 116). Furthermore, it is quite customary to use manual power for this purpose even in the modern machines (Vol. I, p. 161, Qs. 21, 22; p. 168, Qs. 16-26; p. 134, Rd-Q. 79). This also is practiced at the Plaintiff's plant (Vol. I, p. 232, p. 622).

Plaintiff seeks to avoid the effect of this Belgian patent by ascribing a different mode of operation to it.

In the first place, Browne says that the action of the rolls 26 and gears 36 partially pre-forms the fabric as it is drawn onto the core (Vol. I, p. 462).

This criticism can be quickly answered. Browne testified on *prima facie* (Vol. I, p. 62, x-Qs. 74, 75);

> "I do not think that any details of the fabric supply of the patent in suit are characteristic beyond furnishing tension upon the fabric as it is drawn onto the slowly rotating core."

and Plaintiff's counsel referred to the fabric supply devices as "extraneous details" (Vol. I, p. 621, Q. 7).

and said on page 6 of his brief below:

> "There is no longer any claim on the original stretching or tension devices."

Secondly, Browne says that the Belgian patent only shows one conical gear 36 on each side of these rolls, and that such an arrangement would not be effective to produce any crimping action on the fabric (Vol. I, p. 475, p. 512, x-Q. 144). His inconsistency on this point is most striking. First he says that the action of these gears is to crimp and

then he says they are arranged so that they cannot crimp. Plaintiff's brief below (p. 153) after discussing the action of these gears, asks "Why does defendant adopt a theory of operation which takes all the utility out of the puckers* when Matherne takes such pains to assign utility to them?" Without admitting the accuracy of the intimation, we might counter by inquiring "Why does Plaintiff adopt a theory of operation of the State patent which takes all the utility out of the tread roll when State has taken such pains to assign an essential operation to it?" In point of fact, Defendant does not exclude these unimportant gears of Matherne, while Plaintiff does exclude State's tread roll which is the only thing shown or described by State for shaping the tread portion.

The next criticism is that the rollers 30 operate throughout the entire sides of the core so as to stick the fabric down onto the core clear to the inner circumference (Vol. I, pp. 463, 464, 471). Browne says that the result of this operation would be to stick the edges of the fabric to the core in a wrinkled condition (Vol. I, p. 464). He apparently describes this as being Matherne's intention. In other words, while he does not deny that the rollers 30 can be operated as Waterman understands, and as shown in the photographs, Defendant's Exhibit D (*e. g.*, No. 5, *supra*, p. 110) he says that Matherne, who was "a well educated, technically trained inventor and designer, with a very thorough knowledge of European tire making practice" (Vol. I, p. 196), nevertheless intended to use these rollers so as to stick wrinkled fabric to the core and ruin the tire. His sole foundation for this is that the patent says these rollers operate on the "sides" of the core, and he says that this must mean the entire sides; together

* Said to be formed by the gears 36.

with the fact that the patent says the operation of the spinning rolls shown in Fig. 6 is to remove puckers or wrinkles which have been previously formed.

This criticism can also be easily answered. In the first place, there is nothing to require that the word "sides" shall means the entire sides. We can refute plaintiff's expert by the claims in suit, which refer to the spinning rolls as passing radially along the "sides" of the tire-shoe, and yet plaintiff maintains throughout, and the Disclaimer says, that these rolls operate only on that portion of the sides beyond the tread portion. Hence plaintiff's expert, through pure caprice, gives opposite meanings to the same word in these two patents.

Secondly, when the Belgian refers to the action of the spinning rollers of Fig. 6, which do spin the fabric all the way down to the inner circumference or base of the tire, he distinctly says so in the following language (Vol. II, p. 220):

> "The roller is caused to descend progressively on the side of the core and all the way down to its base."

If the Belgian meant that the rollers 30 operated to this same extent, why the difference in the descriptive language?

Thirdly, the rollers 30, when properly operated, do stick the fabric to the "straight" or "convex" sides of the core, and do form puckers or wrinkles in the fabric. But these puckers or wrinkles are in the edges of the fabric which are free from the core, as plainly shown in photograph No. 5 of Defendant's Exhibit D, *supra*, page 110; so that the proper and sensible action of the rollers 30 corresponds exactly with the language of the Belgian specification.

Fourthly, Browne's position in this respect is contradicted by the language of plaintiff's own

Seiberling and Stevens patent (Vol. II, p. 258). This patent has means for shaping the fabric to the tread portion and part way down the sides (Pat., p. 2, line 105). It also has reciprocating fingers for forming down most of the skirts of the fabric. As shown by the decision of the Court of Appeals in the *Firestone* case, it was plaintiff's contention that these reciprocating fingers are the substantial equivalent of the spinning rolls of the State patent, and hence, that they act upon fabric which has not previously been applied to the core. This must also have been plaintiff's contention in the present case when he joined this patent in the Bill of Complaint. But this patent says (p. 1, line 52) that these fingers are for "smoothing the wrinkles out along the sides of the shell [tire], while being constructed". And in his brief before the Court of Appeals in the *Firestone* case (p. 20) Plaintiff's Counsel, referring to the Seiberling & Stevens patent, said:

> "These fingers, as in hand operation, serve to stretch the fabric radially, to smooth out the wrinkles, and to lay the fabric conformably along the core."

This is the language which the Belgian employs in describing the function of the spinning rolls of Fig. 6, as plaintiff maintains. But in relation to the Belgian patent, plaintiff says this means that the wrinkles to be removed must be those which have already been stuck to the core, while in the case of his own patent, his contention is the opposite. He insists that the rollers 30 of the Belgian patent must have acted throughout the entire sides of the core or that there would not be any wrinkles or puckers formed for the spinning rolls of Fig. 6 to remove. But the language of his own Seiberling

and Stevens patent shows that wrinkles are formed in the skirts of the fabric by the mere operation of shaping it to the tread and part way down the sides of the core, and his own exhibit pictures of the Goodyear commercial machine show the same thing (Vol. II, p. 191).* And even in connection with the State patent in suit, Browne admits that if the fabric is stretched circumferentially on the core and the tread roll then used, the skirts of the fabric are in a loose and baggy condition which can be described by saying that they are in the form of "puckers", and he unqualifiedly admits that prior to the step of operating the spinning rolls there are puckers or corrugations in the unattached portions or skirts of the fabric, which puckers or corrugations do not exist after the operation of the spinning rolls (Vol. I, p. 510, x-Qs. 132, 134). Hence, the spinning rolls of the State patent are necessarily for performing this same function of "removing the puckers". In view of these statements and admissions as to the operation of the Seiberling and Stevens and State patents, we confidently submit that the interpretation Browne puts on this language of the Belgian patent is inconsistent and unfounded.

The natural interpretation is that the puckers or wrinkles are formed in the unattached fabric edges or skirts, and this is the actual fact in operation. Thus formed, they are removed by the action of the spinning rolls of Fig. 6, just as the patent recites.

Our position finds further support in the testimony of Duncan, who says that his concern (the Hood Company) obtained some of these machines from Matherne in 1910 and 1911 (Vol. I, p. 203,

* *Supra*, page 45.

x-Q. 63). He was cross-examined as to the operation of the rollers 30, as follows (p. 204):

> "x-Q. 66. Please tell me how the pairs of reciprocating rollers 30 last referred to operated on the fabric already stretched on the core?
>
> "A. They were used to apply the fabric down to the neutral line of the fabric, approximately the center of the side of the core."

The Belgian patent describes the result of the action of the Fig. 6 rollers which spin down the loose skirts or edges of the fabric saying (Vol. II, p. 220, line 4 from bottom):

> "Thus there is obtained the complete and rapid removal from the fabric of the puckers,".

This is exactly what happens and is exactly what is shown by an examination of photos 10, 11 and 12 (*ante*, p. 111) of Defendant's Exhibit D. Furthermore the Belgian refers to this action as:

> "producing a progressive removal from the fabric of the puckers by eliminating the puckers from the point of their origin, this being performed in a single descending movement" (Vol. II, p. 221, line 13 from bottom).

The photos just referred to correspond exactly to this description, for it will be seen that photo No. 10, shows the spinning rollers of Fig. 6 beginning their operation at the **point of origin** of the puckers, and the next two photos show their progressive elimination in a single descending movement. While the Belgian patentee refers many times to this spinning roll of Fig. 6 in the singular, as does State, he says distinctly that

> "Both sides may be readily worked at the same time, by mounting two tools like that shown in Fig. 6 on the sliding tool carrier 17" (Vol. II, p. 220, last line).

The whole foundation of plaintiff's theory is contrary to long established principles. The cases most often relied upon by plaintiffs in these instances are those following the well known doctrine of *Topliff* v. *Topliff*, 145 U. S. 156, in which is said that a prior device is not anticipatory if it was not "designed by its maker nor adapted, nor actually used" to perform the function of the patented patent. But the plaintiff here overlooks the fact that not even he has been able to dispute that the machine of the Belgian patent is *adapted* to perform the function which he attributes to the machine of the patent in suit. Defendant says that it was designed to perform this function, but it does not need to go this far because the Belgian patent is anticipatory if it can be operated to perform the function of the machine of the patent in suit, and even though ordinary mechanical changes are required. As said in *Barber* v. *Otis*, 271 F. R. 171, 177 (C. C. A., 2):

> "If the mechanism made under the prior art patent is capable of producing the same results, or is designed, adapted, or used to produce the same results or perform the same function, it may be successfully set up as an anticipation."

See also *Dashiell* v. *Grosvenor*, 162 U. S. 425, 432; *Pickering* v. *McCullough*, 104 U. S. 310, 319; *Cohn* v. *U. S.*, 93 U. S. 366, 377; *Century* v. *Wagner*, 192 F. R. 564, 565 (C. C. A., 8); *Van Epps* v. *United*, 143 F. R. 869, 874 (C. C. A., 2); *Standard* v. *Standard*, 223 F. R. 779, 786; *Ironclad* v. *Dairyman's*, 143 F. R. 512, 515 (C. C. A., 2).

Plaintiff says the Belgian patent was a "paper patent". This is not a fact because, as already noted, the exhibit machine here in evidence with

the spinning rolls of the Belgian patent was commercially offered to the Hood Company by Matherne in 1911 (Vol. I, p. 204); and the exhibit machine was actually used later on in the Firestone factory for the production of commercially satisfactory tires (Vol. I, p. 160). In any event, this claim of defendant is unimportant, in view of the decision in *Pickering* v. *McCullough*, 104 U. S. 310, 319, in which this Court said:

> "It is objected, however, that the machines described in these patents are mere paper machines, not capable of successful practical working. But on examination it sufficiently appears, we think, that the objections can be sustained only as to minor matters of detail in construction, not affecting the substance of the invention claimed, and could be removed by mere mechanical skill, without the exercise of the faculty of invention. In this view, the Wise and Smith patents are not rendered inefficient as defences in this suit, by reason of the alleged imperfections of the machines described in them."

Appellant argues as though different standards of criticism apply to the disclosures of the prior art and the patent in suit. This is not the law. This Court said in *New York* v. *Chain*, 254 U. S. 32:

> "We yield to the assertion of counsel that he [patentee] cannot be deprived of an advantage because he did not discern it, but the same concession must be given to Murray [prior art]. He was entitled to all of the benefit that he claimed for his device, or that can be given to it by formal changes.

See also *Knapp* v. *Morss*, 150 U. S. 221, 227; *National* v. *Interchangeable*, 106 F. R. 693, 708 (C. C. A., 8); *Fuller* v. *Yentzer*, 94 U. S. 299; *Wessel*

v. *United*, 139 F. R. 11, 15 (C. C. A., 6); *Appleton* v. *Star*, 60 F. R. 411, 415 (C. C. A., 7).

Plaintiff's expert's criticism of the Belgian patent is founded almost entirely upon the alleged action of the rolls 30 But it has been shown by Waterman that the machine operates perfectly even if these rolls be entirely omitted (Vol. I, p. 280, Q. 69). Browne answers this by saying that there is no suggestion in the Belgian patent, that the rolls 30 can be omitted (Vol. I, p. 476, Q. 60). But the Belgian does say that these rolls can be "placed at any desired point on the core"; *i. e.*, they may be used simply on the edges of the tread portion, if desired. There is no suggestion in the State patent that the tread roller can be omitted (Vol. I, p. 513, x-Qs. 152, 155). Yet Browne says that the mode of operation which he ascribes to the machine of the State patent in suit is carried out with the tread roller omitted (Vol. I, p. 513, x-Q. 151). He has to say this because defendant's machine employs no tread roller. Thus his whole treatment of this Belgian patent seems to be hypercritical and inconsistent. The facts are plain and their effect cannot be avoided. **There is no question that the machine of this Belgian patent is a practical tire making machine for making commercial tires.** This is testified to by Thomas, General Superintendent of the Firestone Tire & Rubber Company, and is uncontradicted (Vol. I, p. 161, Q. 14). Commercially satisfactory tires have been made thereon and tested in use (Vol. I, p. 160). Nor can it be denied that Matherne, the patentee of this Belgian patent, was a well educated, technically trained inventor and designer with a thorough knowledge of tire making (Vol. I, p. 196, Qs. 16-20).

The Plaintiff points out that this Belgian patent

was allowed to expire through failure to pay the annual tax. But this is of no legal effect. *Sirocco v. Sturtevant Co.*, 220 F. R. 137, 143 (C. C. A., 2).

On the above showing the claims in suit are void for anticipation.

As already indicated, **the Court of Appeals for the Sixth Circuit disagreed with all the criticisms of the Belgian patent made by plaintiff.** The Court below also apparently disregarded many of them. It apparently agreed with our contention that the rollers 30 merely applied the fabric to the side portions of the core immediately adjacent the tread, because the opinion says (Vol. II, p. 411):

> "by certain mechanism Matherne proposed to unwind the fabric which is advanced to the core, and to stick or plaster it to the tread circumference, or, as the patent states, 'as the fabric is pulled along and unwound from the drum 18 it encounters the rollers 30 on the casing 28 * * * each of these rods carries at its extremity a roller 30 which advances and retracts on the core, so as to stick to its straight or convex sides the fabric which has been placed there.' In addition to thus plastering the tread portion and thereby lengthening the fabric along the line of the *median circumference* of the core, etc.". (Italics ours.)

Judge Buffington's assertion is that the fabric was wrinkled or puckered by the conical gears 36 and that these puckers were stuck to the sides of the core by the rotary movement of the core in drawing the fabric from the source of supply. In this connection Judge Buffington says (Vol. II, p. 412):

> "Moreover, this puckered edge or skirt was not left free as in State, but was plastered

down by Matherne to the side of the core, in that regard the patent saying:

> 'The fabric is placed on the core, which is coated with a layer of rubber solution so that the fabric adheres well to it and may be pulled along by its rotary movement.' "

This is the only part of the Belgian patent to which the learned Judge refers in support of his contention that the puckers were stuck to the sides of the core instead of being left free, and it is quite apparent that he did not realize that this coating of the core with a rubber solution, or other adhesive substance, has always been the practice both in hand making and machine making of tires. The purpose is to enable the end of the fabric to stick to the core so that it can be drawn along by the rotation of the core, and also to cause the loose edges or skirts of the fabric to stick to the sides of the core when they are pressed against them by the spinning roller. Indeed, the patent in suit makes corresponding statements, specification, page 3, line 55:

> "In order that the ring-core may take hold of the fabric, the core is coated with rubber or cement"

and again on page 6, line 95, where State says:

> "The operation of my machine will now be reasonably clear. As I have before explained, a ring-core supplied with some adhesive material on its exterior portion is placed upon the chuck", etc.

Therefore, we see that there is no proper authority for giving to the corresponding language of the Belgian patent, the meaning which is attributed to it by the Court below.

Additionally, an examination of the bottom portion of Fig. 2 of the drawings of the Belgian patent (Vol. II, p. 227) will show that the conical gears 36 (at the right) are spaced so far apart that they would hold the edges of the fabric out from the sides of the core and thereby prevent them from adhering as the fabric was drawn on to the core from the stock roll.

This being the case, and the Court below having agreed that the rollers 30 merely assist in cementing the fabric "along the line of the median circumference of the core" (*i. e.*, center of the sides of the core) **there is nothing which can possibly prevent the fabric from flying out from the inner sides of the core** (*i. e.*, beyond the tread portion) **under the influence of centrifugal force when the core is rotated at the high speed, as described in the specification,** which is over twenty (20) times the low speed. Hence, the following operation of the spinning roller 17 is necessarily the same as that attributed to the spinning roller of the State patent, and the Court of Appeals for the Sixth Circuit was certainly correct in saying (Vol. 257, F. R. p. 84):

> "the tool of the Belgian patent is a spinning roll, and performs a spinning operation;"

and again

> "the Belgian tool in its radial progress was bound to stretch and re-shape the fabric in substantially the same way that is done by State."

In his opinion, when arguing differences between the machine of the State patent and that of the Bel-

gian patent, Judge Buffington explained that the Belgian (Vol. II, p. 413):

> "deliberately formed puckers [when placing the fabric on the core] and then sought to eliminate them [by his spinning rolls], a procedure wholly different from State, who never formed puckers, and indeed prevented their formation by radial stretch and radial diamond pointed interstices."

And in another place the Judge said (p. 408):

> "Thereby he [State] then, and by the wheels [spinning rolls], pressed and cemented the radially stretched and therefore puckerless fabric against the lessening sides of the shoe clear down to the bead edge."

To visualize how far the Court below was from an accurate understanding of the fact, we have simply again to refer to the photographs of the Goodyear commercial machines (Vol. II, pp. 189, 191). Who can look at the photograph on page 191* and then agree with Judge Buffington that the centrifugal force generated by the high speed rotation of the core radially stretched the fabric so that "State never formed puckers", when we see nothing but puckers in the loose skirts or edges of every layer of fabric shown on the core? And who can agree, while looking at this picture, that these spinning rolls press the "puckerless fabric" of the tire "clear down to the bead edge"? Relying only upon Plaintiff's demonstration of the commercial machines at his factory, we can unhesitatingly say that State did form puckers in the outlying skirts or edges of the fabric —most prominent and numerous puckers. We can also say that, instead of cementing the alleged puckerless fabric "clear down to the bead edge" with

* Reproduced *supra*, page 45.

his spinning rolls, he only went a little more than half way from the outer circumference to the inner circumference and left the cementing and forming "clear down to the bead edge" to be done by a hand operator resorting to the old-fashioned hand spinning procedure (Vol. I, p. 234). Therefore, the distinctions which the learned Judge draws between the State and the Belgian patent, are not accurate.

Seiberling and Stevens Patent.

(Vol. II, p. 257.)

This is one of the two patents originally in suit and Plaintiff was one of the co-inventors. Although it was strongly relied upon by Plaintiff in the *Firestone* case, and one of its claims there sustained, Plaintiff has not even made a *prima facie* case upon it in the present suit, and State actually disparaged the machine of this patent (Vol. I, p. 306, Qs. 30-32); while the Plaintiff himself said nothing about it.

This machine was described by the Court of Appeals in the *Firestone* case (257 F. R. 76). It is described by Defendant's expert, Waterman, beginning at the bottom of page 255, Vol. I. Briefly, it comprises a core 8 (Fig. 1) which is mounted for rotation at either low or high speed by friction drive mechanism. The fabric is led through tension rollers 43 and 46 (shown at the left) arranged to be squeezed together to increase the tension on the fabric. The fabric is indicated in dotted lines as running from these tension rollers onto the core. The tread roller 17 serves to shape the fabric to the tread of the core, and its edges extend quite well down the sides of the core and are pressed laterally against the core by small rollers 52 held

on the ends of arms 53, which are drawn together by a spring 54; the spring exerting the lateral pressure.

The fabric is next acted upon by a pair of fingers 85 which reciprocate on the core in a radial direction, and shape the fabric to the sides thereof. These fingers are laterally pressed against the core during their inward movement by the mechanism connected therewith. Following the action of these fingers, the edges of the fabric are stitched in at the base of the core by the stitching rollers 91. These rollers are shown on an enlarged scale in Fig. 4 and are laterally pressed against the core by the workman pulling downwardly on the handle of the lever arm 93. Furthermore, these rolls may be moved radially with respect to the core by the same means, the apparatus which supports them swinging about the pivot 38. It is obvious that these stitchers are similar to State's spinning rolls and that they can readily be caused to act upon the sides of the fabric at the inner portion of the core. Indeed, Plaintiff is *estopped* to assert that these devices can perform the function of spinning rolls, because in the Bill he charged infringement of claim 14 of this patent (which covers the mechanism just described) by the forming rolls of Defendant's machine which he also says are the same as the spinning rolls of the State patent. It should be noticed that these stitching rollers 91 are mounted at a receding angle to the plane of the core, as mentioned in a few of the claims in suit. The Court of Appeals said in the *Firestone* case (257 F. R. 83):

> "The Seiberling and Stevens patent shows what it calls creasing or stitching rollers. Each one is undoubtedly an effective spinning

> tool and capable of use as such; their edges, as shown, may be sharp enough to cause some danger of cutting the fabric, but the spinning would be done by the side bevels, not by the extreme edge; and plaintiff's theory that defendant's spinning roll is so far the equivalent of the Seiberling and Stevens stitching rolls as to make out infringement of the claim based thereon goes far to persuade that they are, in a broad sense, an anticipation of State's spinning roll. There seems no sufficient reason to doubt that Stevens used them for spinning in 1903 or 1904."

Thus, this patent includes a power driven ring core, a fabric supply and means for exerting tension thereon, a tread roller for shaping the fabric to the tread, radially moving fingers for shaping part of the fabric to the sides of the core, and radially moving laterally pressed stitchers or spinning rolls which are adapted to spin down the remainder of the fabric. There is also an arrangement for low speed and high speed rotation of the core.

Plaintiff's brief below (pp. 18, 19) treated the Seiberling and Stevens machine as a failure. It said that after the fabric had been stretched circumferentially it was "sought to stretch the skirts radially and apply them to the sides of the core, and for this purpose they employed a pair of jigger fingers" but that "the effort failed" and the machine "was finally abandoned and junked". In the *Firestone* case, the brief (p. 20), prepared by this same counsel, referred to the action of the said jigger fingers as follows:

> "These fingers, as in hand operation, serve to stretch the fabric radially, to smooth out the wrinkles and to lay the fabric conformably along the core."

On page 21, it was referred to as a "valuable apparatus".

Plaintiff's expert said in this case (Vol. 1, p. 486):

> "Circumferential stretch is obtained when drawing the fabric onto the ring-core. Radial stretch on the skirts of the fabric is achieved by the reciprocating action of the jigger fingers 85."

The trial Court in the *Firestone* case, after seeing the machine of this patent in operation said (234 F. R. 371) that

> "it was decidedly an advance step in the art and so far occupied the field that it anticipated, in a large measure",

the State invention. The Court of Appeals for the Sixth Circuit, after also seeing the said machine in operation, said (257 F. R. 80):

> "State's machine was of the same general type as Seiberling & Stevens."

Judge Buffington, without analyzing this patent and without seeing the machine in operation, dismissed it with the statement that it was "of wholly different type" from the State machine.

We submit that this patent must necessarily limit the State patent to its specific details, and that Plaintiff's attempt in this case to weaken the force of this patent by State's testimony in disparagement thereof, is not only inconsistent with his position in the *Firestone* case; but that he is *estopped* to deny full force to this prior patent because of his ownership of it and its joinder with the State patent in the Bill of Complaint, in which he said, under oath, that the invention of this patent was "of great benefit and advantage to the public" (Vol. I, p. 3).

Vincent Patent.

(Vol. II, p. 245.)

This patent is for a tire making machine of the same kind as the State patent; and the machines were in commercial use, both here and abroad, before State's alleged invention (Vol. I, p. 187, *et seq.;* pp. 388, 389).

Waterman described this patent (Vol. I, p. 254) and Browne is in substantial agreement (Vol. I, p. 482, Q. 69). It shows a core represented by a large circle in Fig. 1. There is a stock roll 13, at the right, and between the stock roll and the core are rolls 16 and 17, which are geared to each other so as to "stretch" the fabric (Pat., p. 1, line 17). These rollers are convex, as in many of the Goodyear commercial machines, so as to cause the fabric to more readily conform to the tread of the core. After the fabric has been thus stretched and shaped to the tread portion of the core, its edges or skirts are formed to the sides by means of hammers 30 which are laterally spring pressed towards the core, and arranged to operate, one after the other, in an inward radial direction. As Waterman said (Vol. I, p. 255):

> "These hammers act progressively radially inward as the core with the fabric applied to it rotates, thus laying the fabric smoothly against the core with a progressive inward radial action."

This patent discloses all the elements of claims 4, 5, 6, 7, 22, 23, 24 and 25, except that the specific device of radially acting sets of hammers is substituted for the radially moving spinning rolls. The only additional difference between this machine

and claims 12 and 13 of the State patent is that the Vincent machine does not show high and low speed mechanism; and the only difference between the Vincent patent and claim 26 is that the fabric is not drawn from the source of supply in a flat condition and the support for the hammers is not a sliding one. But these last named features are all shown in the Seiberling & Stevens patent, so that it did not amount to invention to embody them in the State machine. *Stimpson* v. *Woodman*, 10 Wall. 117, 120, 121; *Adams* v. *Bellaire*, 141 U. S. 539; *Mast* v. *Stover*, 177 U. S. 485; *Rich* v. *Baldwin*, 133 F. R. 920, 922 (C. C. A., 6); *Overweight* v. *Henry*, 102 F. R. 957, 961 (C. C. A., 6); *Campbell* v. *Duplex*, 101 F. R. 282, 294 (C. C. A., 6); *Jacobs* v. *Almond*, 177 F. R. 935, 936 (C. C. A., 2); *Archer* v. *Imperial*, 207 F. R. 81, 82 (C. C. A., 2); *Wilson* v. *Frank*, 173 F. R. 619, 622 (Colt, *J.*); *United* v. *Sturtevant*, 122 F. R. 470, 474; affirmed 125 F. R. 378 (C. C. A., 1); *Sieber* v. *Chicago*, 184 F. R. 930, 931 (C. C. A., 7); *Wisconsin* v. *American*, 125 F. R. 761, 767, 768, 769 (C. C. A., 7), see cases cited; *Voigtmann* v. *Weis*, 133 F. R. 298, 302, affirmed 148 F. R. 848 (C. C. A., 8).

Chief Claims of State Patent were Granted Because Patent Office was Misled by Plaintiff.

During the prosecution of the application for the State patent, pending claims 4 to 10 (corresponding in subject matter to claims in suit Nos. 4, 5, 6 and 7), were rejected upon this Vincent patent (Vol. II, p. 365). Following this rejection, these claims were cancelled, but again presented

with merely formal changes (Vol. II, pp. 371, 373). State also inserted claims in suit 22, 23, 24, 25 and 26 (Vol. II, pp. 379, 381) which, as already indicated, are substantially identical with claims 4 to 7 inclusive. The remaining claims of the patent were rewritten at this time. This amendment and presentation of claims by the applicant was not accompanied by any written argument in support of the novelty of the claims. But it was supported by affidavits of Plaintiff and State.

State said (Vol. II, p. 385):

> "I am informed and believe that a machine about as shown in the Vincent patent # 794,473, and employing hammers for shaping the tire fabric on the sides of the ring core, has been used in this country, but that it proved unsatisfactory and was abandoned."

Plaintiff said (Vol. II, p. 389):

> "As president of the Goodyear Tire & Rubber Company, it has been my business to keep informed in the art of making Pneumatic Tire shoes, and I have kept myself so informed by discussing the state of the art with the various competitors of the Goodyear Company, by visiting other factories where Tire Shoes are made, and by reading the trade journals.
>
> * * * * *
>
> "Affiant has, furthermore, been informed from several responsible sources and believes that a machine like that of the Vincent patent # 794,473, employing a set of hammers to shape the fabric on the sides of the ring core, has been actually tried in one of the large tire making factories and that its use has been abandoned."

As a result of these affidavits, the Patent Office allowed the claims here in suit. The obvious pur-

pose and effect of these Affidavits was to show that the machine of the Vincent patent was not a practical machine and that, therefore, it should not be used as an anticipation of State's application. But the fact was the contrary, and the record shows that Plaintiff's information was to the contrary. Presumably State's was also, because of his close association with Plaintiff.

As showing that the fact was the contrary reference is made to the testimony of Raymond (Vol. 1, p. 187). He is the vice-president in charge of production at the B. F. Goodrich Company, and shows that one of these Vincent machines was obtained by his company and operated on a large commercial scale for about a year. It was an entirely satisfactory machine and made perfectly good tires.

As showing that Seiberling was not frank with the Patent Office in his statements in this Affidavit, and that State presumably followed this same course, reference is made to a letter which is printed on pages 401 and 402, of the Record, Vol. I. Plaintiff was asked the purport of the letter (Vol. I, p. 388, Qs. 21-24), and said:

> "I had learned of a machine used by Pirelli & Company, in Milan, known as the 'Vincent' machine; and I had a talk with Pirelli about it; and I wrote my brother concerning it, and stated that I thought of negotiating with Vincent for United States rights."

This letter was written by Plaintiff in August, 1907—some two years before he made his Affidavit to the Patent Office. At that time Plaintiff was a Director and General Manager of the Goodyear Company and his brother was Secretary thereof

(Vol. I, p. 413; Rd-Qs. 207, 208). Plaintiff wrote as follows (Vol. I, p. 401):

> "I have just come from a meeting with Mr. Pirelli. They have one of the tire machines invented by a Frenchman which makes *four tires per hour* up to the cover. He claims it works perfectly putting the fabric on at uniform tension, the beads accurately located, with a saving in material." (Italics ours.)

Plaintiff also admits that he never saw the Vincent machine at the Goodrich Company and that he cannot testify of his own knowledge that it was only used part of one year and then thrown into the scrap heap (Vol. I, p. 409, x-Qs. 179, 180) although he had testified on direct that he knew this (Vol. I, p. 396, Q. 69).

Owing to the position of Plaintiff in the industry, the Patent Office Examiner doubtless gave great weight to his inaccurate Affidavit. Doubtless it caused the Examiner to withdraw the Vincent patent as an anticipation and allow the most important of the claims here in suit. To the same effect was State's affidavit, but we cannot impute to him direct information as to the practicability of the Vincent machine. We can only presume that he had knowledge of the fact from the presumption that the contents of Seiberling's letter from Italy would naturally have been discussed with him. This deception of the Patent Office not only affects the weight to be given the Plaintiff's testimony. It shows that if the Patent Office had not been persuaded to regard the Vincent patent as an impractical one, it would have continued the rejection of the claims referred to and not have granted State's patent in its present form.

Moore Patent.

(Vol. II, p. 273.)

This patent has become very pertinent in this case in view of Plaintiff's contention that the Disclaimer changes the claims in suit to combinations of a high speed core and a spinning roll (Brief below, p. 7). Moore unquestionably shows this combination.

This is a patent for making tire casings. It discloses an expansible core 49 upon which an endless band of rubberized fabric is intended to be placed. This fabric is stretched by expanding the core. Following this stretching the core is rotated by power at high speed and the fabric is rolled down by a set of rollers, one of which is a spinning roller 47. This roller is mounted on an arm 40 which is pivoted so as to swing in a radial direction with respect to the core.

The operator seizes this arm and causes both the radial and lateral movement of the spinning roller in working on the fabric. Waterman describes this patent beginning Vol. I, page 257.

In the *Firestone* case the Court of Appeals said (257 F. R., at p. 83):

> "The Moore patent shows what is, essentially, a spinning roll for operating against a revolving core in making a tire casing. It was intended to and did smooth down the Moore tire from the center of the tread only part way, and not much further than may be done by the typical tread-forming roll; but the operation is substantially spinning, as far as it goes, and involves, in some degree, the characteristic relocation of the threads of the fabric, even though it may only put them back

> where they were before the casing was distorted by placing it on the core. In the Moore patent, the handle of the spinning roll was so attached to its frame that the roller could not effectively travel radially of its core down as far as the bead, but if its attaching staple is made larger, the whole tire can be formed thereby as demonstrated."

Waterman says, beginning at the bottom of page 258, Vol. I:

> "The specification does not limit the use of the machine to any one particular form of core and it is obvious that any of the forms now in use might be employed. The specification expressly states, page 2, line 107, that it may be 'of any other desired and approved shape'."

The specification of the patent also says that

> "the rotation [of the core] is kept up at a high rate of speed during the performance of the operations" (Vol. II, p. 281, line 73);

and that the spinning rolls are

> "successively brought into action, smoothing and stretching the said wings [of fabric] into proper position and condition" (Vol. II, p. 282, line 24).

thus describing the high speed of the core and radial stretch of the fabric.

We submit that this patent necessarily eliminates any patentability from "the combination of the forming or spinning-roll with the high-speed core", which Plaintiff said in his brief below (p. 7) is "The only thing" left in the State patent after the filing of the Disclaimer.

The Sixth Court of Appeals did Not Rely Upon the Defense of Aggregation Alone.

Judge Buffington devotes several pages of his opinion to an argument that the *process* which he attributes to State embodies inter-related steps and is not, therefore, an aggregation; whereby he concludes that the Court of Appeals for the Sixth Circuit was in error in holding that most of the claims of the State patent, when considered as machine claims, were for aggregations. Thus, after lengthy discussion, Judge Buffington says (Vol. II, p. 408):

> "it follows that the process is a unitary one, is a continuous one, is an inter-related one, is an undivided one."

We feel that the learned Court below must have misunderstood the position of the Court of Appeals for the Sixth Circuit, because the latter Court expressly notes that the defense of aggregation does not apply to a process, and that it would be somewhat artificial to invalidate a patent on the ground of aggregation, if the same monopoly might have been obtained by a method patent, and that, therefore, the Court preferred to go further and show that, considering the State patent as for a method, it was anticipated. The exact language of the Court in the *Firestone* case was as follows (257 F. R., p. 82):

> "but plaintiff really presents his case on the theory that State discovered a new method of making tire casings or a new set of functions to be performed by associated mechanism. Although a mechanical patent may not be granted for a function (*Westinghouse* v. *Boyden Co.*, 170 U. S. 537, 18 Sup. Ct. 707, 42 L. Ed. 1136), yet it is now settled that a

> method patent may be granted for an association of successive mechanical steps (*Expanded Metal Co.* v. *Bradford*, 214 U. S. 366, 29 Sup. Ct. 652, 53 L. Ed. 1034), and to hold a mechanical patent void for aggregation, when the same monopoly sought by the patent might have been obtained through a method patent, seems somewhat artificial; hence, we prefer to point out also that State had nothing broadly new either in his method or in his selected tools;"

There is nothing in the majority of opinion of the Court below to indicate that it gave thought to this fact, although Judge Davis, in his dissenting opinion, expressly takes notice of it.

State was Not the Sole Inventor of His Patent and it is, Therefore, Void.

It is settled law that a sole patent granted for a joint invention is void (*McKinnon* v. *American*, 268 F. R. 353, C. C. A.; *Thomas* v. *Weeks*, 1 Fish. 5; 23 Fed. Cas. 978, 981, No. 13,914; *Barrett* v. *Hall*, 1 Mason, 447; 2 Fed. Cas. 914, 924, No. 1,047; *American* v. *Newgold*, 108 F. R. 957, 959; *Bannerman* v. *Sanford*, 99 F. R. 294, 298; *Smart* v. *Wright*, 227 F. R. 84, 87).

In the present case the patent was granted to Plaintiff upon an application filed by State. The Answer raises the defense that State was not the sole inventor of this invention but that it was jointly invented by State and others. The cross-examination of State on rebuttal developed facts which are submitted to fully support this defense. As this evidence proceeds from the mouth of the alleged inventor, it constitutes the best evidence of the facts and cannot be disputed by Plaintiff.

We shall now analyze claims of the patent and the testimony of State to establish our proposition that he was not the sole inventor of the subject matter of the patent. One of the characteristic claims reads as follows:

> "An open tire-shoe making machine comprising the combination of
>
> a sheet-fabric supply,
> a power-driven ring-core,
> a radially moving support laterally spring-pressed toward the core,
> and a spinning-roll mounted on the support for passing radially along the sides of the tire-shoe to shape the sheeted fabric on the core."

State says that the hand spinning method of making tires was demonstrated to him by one McDonald at the outset and that it constituted a part of the experiments (Vol. I, p. 309):

> "Q. 56. You say that you started a series of experiments sometime in the year 1907, with the idea of obtaining a commercial machine. Did McDonald's demonstration and illustration of this hand spinning method form any part of these experiments?
> "A. It did."

Therefore, State cannot be held to be the inventor of this method.

The first of this series of sketches to show a power drive for the core, is the one entitled "4th device" (Vol. II, p. 71). But this was not State's idea (Vol. I, p. 345).

> "x-Q. 374. Who made the suggestion for the belt drive?
> "A. Thomas made it."

In this sketch the power drive is marked P and W, and the inscription refers to "power-drive P and W, pulleys selected to suit R. P. M. of K". K is the core. Thus Thomas not only suggested the provision of this power belt drive, but also the variations of pulleys in order to obtain different speeds of rotation (R. P. M.) of the core. It must be emphasized that this is not a case in which State made the suggestion of a power drive and Thomas merely did the mechanic's part of providing a pulley and belt in order to connect the device with a source of power. It is a case in which *the original suggestion came from Thomas*, and State, apparently, did not even do the mechanical part. Plaintiff's brief below (p. 47) says:

> "This is the first instance of the core being driven by power,".

Therefore, Thomas was plainly the inventor of this element of the said claim and hence, a joint inventor with State of the whole combination of the claim.

Up to this stage of the experiments, the fabric had been formed down on the sides of the core by the use of a spinning roll or stitcher held in the hands of the operator, even though the core was rotated by power. But later it was suggested that the spinning roll be mechanically mounted on handles made like a pair of tongs, as shown at S in the lower left hand corner of the sketch marked "sketch—7" (Vol. II, p. 77). As to this development State testifies (Vol. I, p. 348):

> "x-Q. 407. In sketch 7 who made the tongs S?
>
> "A. Charley Wattelworth made the sketch,—draftsman; a man named McBride, a foreman of the blacksmith shop, forged them out."

Wattelworth also suggested the employment of a spring so that the support upon which the spinning rolls were mounted should be "laterally spring pressed" toward the core, as required by the claim (Vol. I, p. 355).

> "x-Q. 485. Who made the suggestion for that spring?
> "A. Charley Wattelworth."

The patent shows these supports for the spinning rolls as being separately pivoted, and State admits that it was Wattelworth who first suggested this arrangement, as shown at the bottom of sketch 9 (Vol. II, p. 85; Vol. I, p. 358):

> "x-Q. 517. And who suggested pivoting the arms which carry the spinning-rollers separately, as in sketch 9, instead of on one pivot, as in sketch 8?
> "A. There was a template made for those arms.
> "x-Q. 518. Of sketch 9?
> "A. Yes. In fact, several templates were made for different types of arms in the drafting room, cut out of pasteboard; and I believe that Wattelworth suggested those pivoted in that position."

Certain claims of the patent in suit, *e. g.*, No. 5, refer to the mounting of the spinning roll on the support at a "receding angle" to the plane of the core. State admits that this arrangement of the spinning rolls was worked out by himself and two others (Vol. I, p. 379):

> "x-Q. 727. Who first suggested mounting the stitcher-rollers at a receding angle with respect to the plane of the core?
> "A. That was determined by the attempt to roll the fabric down and clear the skirt. The

angle was put out as far as it could be and avoid hitting the skirt, to get as much pressure direct on the side of the core as you could possibly get.

"x-Q. 728. Who determined that?

"A. That was determined in our experiments.

"x-Q. 729. Who conducted those experiments?

"A. Three of us. That is,——

"x-Q. 730. That is,——

"A. The machinist.

"x-Q. 731. Thomas, Wattelworth and yourself?

"A. Who?

"x-Q. 732. Thomas, Wattelworth and yourself?

"A. No; Thomas——

"x-Q. 733. McDonald——

"A. McDonald.

"x-Q. 734. And yourself?"

From the foregoing, it will be observed that State has admitted that definite and important elements of the combination of this claim 4 were suggested and worked out by others; and that certain elements were suggested by him but put into practical form by others. In view of the fact that this testimony came from the alleged inventor of this patent, who is the assignor of this Plaintiff, its force is necessarily binding upon Plaintiff, and the admissions so distinctly attribute several features to the inventive activities of others, whether that activity be referred to as "suggesting", "drawing", "designing", or "working up", that the fact of joint inventorship is established, and the patent, wrongfully applied for by State alone, is void.

It should be emphasized that this is not a case where one party employed another to make an invention for him. These other men were not

employees of State. All of them, including State, were employees of the Goodyear Company. Hence, the doctrine sometimes applied, that an invention developed by an employee adheres to his employer, is not pertinent to this case.

In *Cheshire* v. *Cox*, 229 F. R. 415, 419 (C. C. A., 7), the Court said:

> "We are not impressed with appellee's contention that the invention was not a joint one. That both patentees worked upon the combination and contributed ideas which were incorporated therein is plainly disclosed in the record. The combination is a unit. Each element pervades the whole of the basic features of the patent. Brewer contributed the adjustable feeder fingers and the curving of the base plates with its edges upward. Cheshire supplied the other items of the combination."

In *Vrooman* v. *Penhollow*, 179 F. R. 296, 308 (C. C. A., 6), the Court said:

> "It would constantly be happening in the case of joint inventions that the illuminating idea was seen by one before it was seen by the other. But between that and the issuing of the patent there is in many instances a long stretch of time devoted to experiments and the consideration of the form or forms in which it may best be used."

In *Chase* v. *Chase*, 1873 Dec. Com. Pat. 99, 100, the Commissioner of Patents said:

> "This is the ordinary process of joint invention. It is the result of the mutual contribution of the parties. If one suggests an idea in a general way and the other falls in with it, and by his aid develops it and gives it definite practical embodiment, the two may be considered joint inventors."

To the same effect are *McKinnon* v. *American*, 268 F. R. 353 (C. C. A., 3); *Thropp* v. *de Laski*, 226 F. R. 941 (C. C. A., 3); *Gottfried* v. *Phillip*, 5 Ban. & A. 4; 10 Fed. Cas. 841, 843, No. 5633; *Smart* v. *Wright*, 227 F. R. 84, 87 (C. C. A., 8); *Worden* v. *Fisher*, 11 F. R. 505, 506; *Quincey* v. *Krause*, 151 F. R. 1012, 1017 (C. C. A., 6); *Sawyer* v. *Edison*, 1883 Dec. Com. Pat. 80, 85; *Carter* v. *Perry*, 1875 Dec. Com. Pat. 111, 116; *American* v. *Wood*, 189 F. R. 391, 395, 396.

Plaintiff relies upon *Agawam* v. *Jordan*, 74 U. S. 583, and the passage which he quotes from the decision in that case is one familiar to all patent lawyers. But the decision of the case is not in point here, since the claim made by the defendant in that suit was that the patentee had no part in the invention. It was claimed that another party was the sole inventor. This Court took particular pains to point out this fact and said on page 604:

> "Respondents do not allege in the answer that the person named was a joint inventor with the original patentee,".

The remaining claims of this patent which are in suit, are subject to the same defense and need not be specifically considered.

Instead of being the sole inventor of this subject matter, State was but one of several joint inventors. It is legitimate to assume that he made use of his position of authority to exclude his associates from their share as inventors. By so doing he violated the law and his patent is void.

Non-Infringement.

Defendant's machines are constructed under patent No. 1,119,326, applied for January 24, 1912, issued December 1, 1914 (Vol. 2, p. 39).

Several decisions of this Court have held that this fact raises a presumption of non-infringement or, at least, a presumption of substantial difference between Defendant's structure and that of the patent in suit. *Corning* v. *Burden*, 15 How, 252, 270; *Miller* v. *Eagle*, 151 U. S. 186; *Boyd* v. *Janesville*, 158 U. S. 260; *Kokomo* v. *Kitselman*, 189 U. S. 8, 23. In the last named case, this Court said:

> "The presumption from the grant of the Letters Patent is that there was a substantial difference between the inventions."

This is an elaborate patent containing seven pages of drawings, seven pages of specification and one hundred and forty-eight claims. It was introduced in evidence by *plaintiff* and referred to by the experts on both sides in discussing defendant's machine, and as descriptive of it.

We will discuss the subject of non-infringement under separate points as follows:

I.

The proofs fail to show infringement of the interpretation which Judge Buffington has given to the State patent for the purpose of saving it and, in fact, disprove infringement of such interpretation. Judge Buffington expressed this interpretation as follows:

> "the crux and dominating functional feature of State's machine is the use on the fabric of a *centrifugal force* caused by the rapid rota-

tion, a process which is wholly different from the original hand process." * * *

Here he (State) changed to something the old hand process had never used, namely, the machine was *speeded up* to a point where the revolution of the wheel and flying skirt of of the uncemented loose fabric *stretched itself radially* and thereby formed radial, diamond-shaped interstices, which contracted the normal length of the fabric" (Vol. 2, p. 408).

"the rapid rotation of the core and the consequent exercise of *centrifugal force* on the covering material *by which it is automatically* gradually *stretched* radially" (Vol. 1, p. 407).

"we are satisfied that *the utilization of centrifugal force to stretch the fabric* and the action of the spinning rolls upon a centrifugally, automatically stretched fabric, was an entirely new combination which State brought into the tire art" (Vol. 2, p. 411). (Italics ours.)

In order to bring defendant's machine within this interpretation Judge Buffington was forced to find that defendant's machine contained

"the loose edges *stretched by the centrifugal force* induced by rapid core rotation * * * the use of spinning rolls cooperating with the *centrifugal radial stretch* of the fabric" (Vol. 2, p. 414). (Italics ours.)

This finding as to defendant's machine has no support in the proof and is contrary to all the proof in the record, as well as contrary to the laws of physics. Correcting this error of fact, it is evident that defendant's machine does not infringe Judge Buffington's interpretation of the patent and, therefore, that his opinion becomes an authority for non-infringement instead of infringement.

We defy plaintiff to refer to any evidence that in defendant's machine the loose edges are "stretched

by the centrifugal force induced by rapid core rotation", or that there is any "centrifugal radical stretch of the fabric", or that in comparison with the hand method the rotation of the core is substantially "speeded up" or varied in any way productive of a different function, mode of operation or result.

In the hand method whatever radial stretch resulted was produced by the spinning wheels and in defendant's machine it can only be by the spinning wheels, if there be any at all, as we say there is not when normally operated. Even plaintiff's expert attributed the radial stretching, which is alleged to exist in defendant's machine, to the spinning rolls and not to centrifugal force saying (Vol. 1, p. 494):

> "in defendant's machine, the tread zone of the fabric is shaped by circumferential stretching and the sides of the fabric are formed by *radial stretching due to the action of the spinning rolls.*" (Italics ours.)

On cross-examination, plaintiff's expert was forced to admit that his allegation of any radial stretching in defendant's machine was a mere inference (Vol. 1, p. 72) saying: "I so infer" and "I assume", and admitting that he had made no tests to prove his assumption (Vol. 1, p. 515).

On the other hand, defendant's expert Waterman testifies, after tests, that in the normal operation of defendant's machine there is no radial stretch, saying (Vol. 1, pp. 278-279):

> "Certainly not always, and so far as I have any information it does not at all. Of course an elongation of the mesh where the fabric is stretched over the tread portion is inevitable as a result of the [circumferential] stretching,

but I have never seen or been able to ascertain from anyone else that there is any distortion of the fabric meshes on the sides into diamonds having the longest dimension radial. I have carefully examined the fabric after being fully applied to the core by defendant's machine, but have not been able to detect any such action with the aid of a magnifier intended for examining the fabric and with a focal length of a little over one inch. This glass shows the elongation of the meshes on the tread due to [circumferential] stretching, but it does not show any radial elongation at any portion of the fabric."

Although plaintiff's expert was called in rebuttal, he failed to rebut the above testimony of defendant's expert in any particular either by tests or examination.

It will be observed that whatever disagreement there is between the experts is only in attributing radial stretch to defendant's spinning wheels and that neither of them in the least support the assumption of Judge Buffington attributing radial stretch to the centrifugal force as the gist of the State invention.

We have already (*supra*, p. 99) cited the testimony showing that the rotation of defendant's core is not materially different from the hand rotation, an example being the following, testimony of Walch (Vol. 1, p. 291):

"x-Q. 53. Do you think the speed of rotation that you gave the core by hand was as great as that now present in the operation of the Thropp machine? Do you understand the question?

A. Yes. Well, it is very near the same; there was not much difference; you can twist the core just as fast as the Thropp machine."

It should be borne in mind that defendant's machine does not attain the speed mentioned in the State patent or anything like it. The State patent says (p. 2, line 4):

> "I have discovered, however, that it is not only possible but highly desirable to let the smoothing and spinning rolls operate upon the ring core while this is moving at a much higher speed, say at 207 turns a minute."

The speed of the defendant's core is only 130 (Vol. 1, p. 277) and defendant's expert Waterman says

> "defendant's machine does not employ the high speed provided in the State patent" (*Id.*).

II.

Since the method or mode of operation of defendant's machine does not differ from the old hand method in any of the respects that Judge Buffington attributed to the State patent, it also follows that no patent covering Plaintiffs' machine can be entitled to a broad interpretation covering all kinds of mechanism by which the hand method may be simulated. In other words, no inventor coming after the old hand method could obtain a patent covering all mechanism simulating the hand method. At most, he could only obtain a patent for the specific mechanism, if new, by which he simulated it. The desirability of simulating the hand method by mechanism was, of course, obvious, and the only problem was to devise a particular mechanism by which it might be simulated.

Since, therefore, it appears that defendant has not followed State in any departure from the hand method, it follows that defendant cannot infringe the State patent, unless it has taken some specific

mechanism invented by State and novel. In other words, the question of infringement must be considered from the point of view of specific mechanism and not from the broader point of view of process.

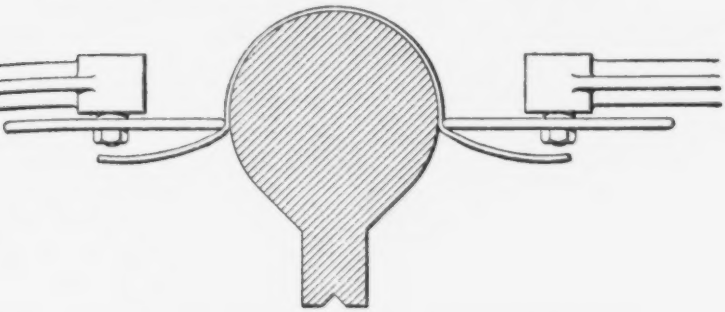
III.

In what follows we show that, viewed from the light of the last above point, the mechanism of defendant patented by the 148 claims of its patent (Vol. II, p. 39) is totally distinct from that described in the State patent, in fact, the two mechanisms are as different from each other as it would be possible for two mechanisms to be, which were intended to simulate the operation of the hand process.

The State patent shows and describes the spinning rolls as being mounted at a receding angle to the plane of the core, *i. e.*, they recede at an acute angle outwardly towards the periphery of the core. The construction of Defendant's machine is such that the spinning rolls are slidable on a curved element so that their angle with respect to the core can be changed, and the patent on Defendant's machine, put in evidence by Plaintiff, shows that it is intended that the rolls shall work at about right angles with respect to the fabric on the core (Vol. II, p. 44, line 108). In Figure 14 of this patent (Vol. II, p. 38), the rolls are shown in two angular positions; one, in full lines, indicates the operation on the edges of the tread portion at a receding angle, and the other, in dotted lines, indicates the operation on the beads of the tire at an entirely different angle.

Plaintiff's expert admits that when Defendant's forming rolls are spinning the fabric on the sides

of the core "beyond the tread portion", to which operation the Disclaimer limits the claims, the rolls are at *right angles* to the plane of the core (Vol. I, p. 73). This is represented in the following cut.



Since these forming rolls of Defendant operate at this angle "beyond the tread portion", it is plain that they do not and cannot "act * * * upon the centrifugally thrown out fabric", as required by the Disclaimer, for the reason that the fabric is inevitably thrown out by centrifugal force so as to be substantially at right angles to the plane of the core, and, therefore, *parallel* to the plane of Defendant's forming rolls. It is clear that, as the rolls and the thrown out fabric are parallel to each other, the operating edge of the rolls cannot act upon the thrown out fabric. Defendant's expert testified on this point as follows, with reference to the spinning rolls of Defendant's machine (Vol. I, p. 279):

> "there is no action directly upon the centrifugally held out fabric * * *. The action is, on the other hand, against the core, as in hand spinning."

Moreover, the forming rolls of Defendant's machine are forced against the fabric already stuck on the core by weights which exert an equal pres-

sure throughout the entire operation. This is an instance in which weights are *not* the equivalent of springs, because the weights exert an equal pressure for all sizes of cores and throughout the entire operation, while the pressure exerted by springs will vary for different sizes of cores and will grow less and less as the spinning rolls approach the inner, narrow portion of the core. This fact is not weakened because the State patent says that weights are the equivalent of springs, and that weights might be used (without describing how they could be used in the machine disclosed in the patent). Indeed, this statement was put in the patent by way of amendment seven months after the application was filed and was not supported by an oath (Vol. II, p. 369). *Steward* v. *American*, 215 U. S. 161. The fact that these two elements operate quite differently, in this environment, was admitted by Browne (Vol. I, pp. 63 and 64, Qs. 78-83). Generally springs and weights are equivalent, but there are a number of cases in which they are not. *Cross* v. *MacKinnon*, 11 F. R. 601. In order to be an equivalent, a device must be adapted to be used in the same environment for performing the same function in substantially the same way. *Burr* v. *Duryee*, 1 Wall. 531; *Superior* v. *August*, 273 F. R. 482 (C. C. A., 2); *Pittsburg* v. *Pittsburg*, 109 F. R. 644, 651 (C. C. A., 3). In Defendant's machine the spinning rolls *always* press against the fabric *which is adhering to the core* as distinguished from the outflying fabric, and they *always* exert the *same* pressure.

Therefore, not only has Plaintiff failed to carry the burden of proof which is upon it to establish infringement (*Price* v. *Kelly*, 154 U. S. 669; *Imhauser* v. *Buerk*, 101 U. S. 647; *Gray* v. *Grinberg*,

159 F. R. 138), by reason of the fact that Defendant's forming rolls are mounted differently and function differently from the description contained in the State patent and in the Disclaimer; but, and most importantly, there is non-infringement because the result of this arrangement in Defendant's machine is that the tires made on the alleged infringing machine do *not* have the radial stretch of the fabric skirts or edges, which is emphasized by Plaintiff as a characteristic of the State machine, and upon the presence of which, as a result of the action of centrifugal force, the Court below has based its decision.

The patent on Defendant's machine was put in evidence by Plaintiff, so that its statements can be used against him. It defines the *circumferential* stretch (Vol. II, p. 43, lines 41, 42) as "much greater than that possibly attained by the strongest operative". This puts the machine in what Plaintiff calls the single stretch class (*i. e.,* no radial stretch), since a strong operative can stretch 17 per cent (Vol. I, p. 197), and Plaintiff said in his brief below (p. 18) that a circumferential stretch of 17% or more signified the "single stretch" process. **Hence, the fact, as shown by this Record, is that the Defendant's machine which is charged to be an infringement, does not operate to produce this radial stretch which Browne says is characteristic of the State machine of the patent in suit and upon which he lays so much emphasis.**

To meet this situation, Plaintiff had his expert, Ray, visit the Lee factory, the Zee-Zee factory, the Ajax factory, and the Racine factory, which factories he said were employing machines made by

Defendant (Vol. I, p. 562, Qs. 105, 106). He says that he observed the operation of these machines and that he saw diamonds in the fabric in or near the bead portion with their long dimension radial (Vol. I, p. 566, Q. 122). He further says that he has purchased a tire made by each of these concerns from retail houses in New York and that he finds that there are diamonds present in the bead portions of these tires with their long axes radial (Vol. I, p. 567). This proof was objected to (Vol. I, pp. 563, 564, 567), and is clearly inadmissible. All this man did was to go to factories *six years after* the filing of the Bill of Complaint and say that he saw machines of the Defendant there which were so operated as to produce diamonds in the bead portion of the tires with their long axes radial. There is no evidence to show that these machines were like Defendant's exhibit machine,* or that they embodied the features alleged to be embodied in the claims in suit; or that they were made by Defendant prior to the filing of the Bill; or that the tires Ray purchased were made on said machines. Plaintiff's brief below (pp. 125, 128, 130, 131) placed great reliance on this testimony, and Judge Buffington seems to have accepted it for he said (Vol. II, p. 414) that Defendant's machine had "the loose edges, stretched by the centrifugal force induced by rapid core rotation". Defendant's machine has been in evidence and has been set up for inspection of Plaintiff's experts both in operation and out of operation, since a date prior to the taking of *prima facie* testimony. If these experts had wanted to test Waterman's statements that there was no radial stretch, all they had to do was to

* Ray admits that in all these machines the spinning rolls were operated manually, and not automatically as in the alleged infringing machine (Vol. I, p. 563).

make further examination of the exhibit machine in operation. But Plaintiff chose not to do this and, instead, followed a course which is illogical and of no evidentiary weight. This rearrangement of the fabric has been made by the Plaintiff and the Court below a necessary characteristic of the so-called "mode of operation" of the patent, so that a machine which did not produce this result would not infringe. The only fact evidence in this case as to the machine alleged to infringe is that it does *not* so operate.

In addition to the foregoing differences, it should be noted that Defendant's machine has no tread forming roll. The State patent repeatedly and clearly describes, as previously pointed out (*ante*, pp. 67-72), that the shaping of the fabric to the tread portion of the core is done by the "tread-forming-roll", and nothing else is suggested for this purpose. Now, before the spinning rollers can be employed to shape the skirts of the fabric to the sides of the core, as required by the claims, the fabric must have been previously shaped to the tread portion. Even Browne admits this, saying, Vol. I, p. 32:

> "However, before the skirts of the fabric can be shaped to the sides of the core the fabric must be first properly applied to the peripheral or tread portion of the core."

Hence, it is imperative that the tread forming roll shall be read into each of these claims. *McCarty* v. *Railroad*, 160 U. S. 110, 116; *Hawser* v. *Anton*, 233 F. R. 262, 264 (C. C. A., 6); *Rodman* v. *Deeds*, 261 F. R. 189, 192 (C. C. A., 7); *Thompson* v. *Union*, 86 F. R. 636, 637 (C. C. A., 2); *Jewell* v. *Jackson*, 140 F. R. 340, 344 (C. C. A., 8); *Herman* v. *Youngstown*, 191 F. R. 579, 583, bottom of

page (C. C. A., 6); *National* v. *Wheeler*, 79 F. R. 432, 438, 439 (C. C. A., 2).

As the Defendant's machine does not have any tread forming roll or any equivalent therefor, we submit that it clearly does not infringe.

Again, the patent plainly describes as an essential, a construction whereby a *pair* of rolls of fabric are arranged to be alternately moved into juxtaposition with respect to the core for supplying the fabric thereto. On page 1, beginning at line 27, the patent says:

> "My machine comprises a power-driven ring-core in connection with a *pair* of stock rollers which have wound thereon strips of canvas skim-coated with rubber and cut on the bias." (Italics ours.)

and beginning on line 45 the patent again says:

> "This combination in an open tire-shoe making machine of a power-driven ring-core with a *pair* of stock-rolls from which alternate layers of crossed fabric may be supplied to the ring-core *is an important feature of my invention.*" (Italics ours.)

The patentee describes and illustrates other arrangements of *pairs* of stock rolls to be alternately brought into operative position with respect to the core (p. 3, lines 42-53; Figs. 13 and 14); but he always insists upon the employment of a pair of stock rolls to be alternately brought into position, and never suggests that his machine could be operated with a single stock roll. Without a source of fabric supply including a *pair* of stock rolls, as described, there is no means, in the State patent, for getting the fabric onto the core. Therefore,

this element must be read into the claims in order to make them operative. See cases cited *ante,* page 155.

Defendant's machine uses a *single* stock roll 67 (see Fig. 1, Vol. II, p. 26); and obtains the crossing of the threads of the fabric by so constructing and arranging the machine that the core can be rotated in opposite directions, so as to draw the fabric from the stock roll first one way and then another (Vol. II, p. 40, line 55, etc.; p. 43, lines 92-117). Browne admitted this on cross-examination (Vol. I, p. 78, x-Qs. 151, 152), and also admitted that the State patent has no "arrangement for operating in this matter" (*id.*).

Of course, the omission of a single element which is in the claims as written or by necessary construction, defeats the charge of infringement (*Cimiotti* v. *American,* 198 U. S. 399; *Eames* v. *Godfrey,* 68 U. S. 78); and, as Defendant's machine is not only constructed differently but operates differently, there is, in the case at bar, no infringement.

Conclusion.

Long ago this Court said in the celebrated case of *Rubber Co.* v. *Goodyear,* 76 U. S. 796:

> "A machine may be new, and the product or manufacture proceeding from it may be old, in that case the former would be patentable, and the latter not. The machine may be substantially old, and the product new. In that event, the latter, and not the former, would be patentable. Both may be new, or both may be old. In the former case, both would be patentable. In the latter neither. The same re-

> mark applies to processes and their results. Patentability may exist as to either, neither, or both, according to the fact of novelty, or the opposite. The patentability or the issuing a patent as to one *in no wise affects the rights of the inventor or discoverer in respect to the other. They are wholly disconnected and independent facts.* Such is the sound and necessary construction of the statute." (Italics ours.)

In the present case it is demonstrated that the machine of the State patent is old. This is shown in the Belgian patent alone, and is admitted by the Disclaimer. The tire, which is the product of the machine, is also old, as is admitted by Plaintiff and found by the Court below. The process or method alleged to be followed by the machine of the State patent is established to be old, by overwhelming proof, in hand operation, not to speak of the Belgian patent, Moore patent, and Seiberling & Stevens patent. This has been so held by the unanimous decision of the Court of Appeals for the Sixth Circuit, by the District Court of New Jersey, and by one member of the Court below. The only point, therefore, upon which the decision of the majority below hangs, is the repeated assertion that the patent in suit discloses a *process* whereby *centrifugal force* generated by high speed rotation of the core causes the fabric to *stretch itself radially.* This point is not suggested in the patent in suit or in any testimony in the record, has not been advocated by Plaintiff's counsel, and is contrary to established laws of physics.

The Disclaimer is unlawful and voids the patent

The patent was the joint invention of State and others, and is void.

Defendant does not infringe.

Therefore, we submit that the decision of the Court of Appeals for the Sixth Circuit and of the District Court of New Jersey should be approved, and that the majority decision of the Circuit Court of Appeals for the Third Circuit should be reversed.

Respectfully,

LIVINGSTON GIFFORD,
E. CLARKSON SEWARD,
THOMAS G. HAIGHT,
Counsel for Petitioner.

APPENDIX.

Opinion of the Court of Appeals for the Sixth Circuit.

No. 2954

UNITED STATES CIRCUIT COURT OF APPEALS.

SIXTH CIRCUIT.

THE FIRESTONE TIRE & RUBBER COMPANY,
Defendant and Appellant,

vs.

FRANK A. SEIBERLING,
Plaintiff and Appellee.

Argued March 14, 1917.
Reargued April 8, 1918.
Decided December 13, 1918.

Before WARRINGTON, KNAPPEN and DENISON, Circuit Judges.

DENISON, Circuit Judge: Seiberling brought the usual infringement suit against the appellant, based upon two patents, each relating to the manufacture of casings for automobile tires. The first was issued to Seiberling and Stevens on June 14, 1904, and was No. 762,561; the second was issued to Seiberling on November 30, 1909, No. 941,962, upon an appli-

cation made by State. The court below held valid and infringed claims 1, 2 and 14 of the earlier patent, and 16 claims of the later patent. The defendant had denied that there was either validity or infringement. After the case had been argued in this court, the defendant discovered a Belgian patent (Mathern, of September 20, 1906) said to show anticipation of State as to some features involved; and, upon an application to remand the case for further proofs, a stipulation was finally made and approved by the court by which this patent and explanatory affidavits were incorporated into the record. The case was then again argued. The record and proofs are unusually voluminous, but, in view of the conclusions which we reach, a relatively brief statement will be sufficient.

A tire casing of the class now involved is composed of successive layers of fabric, cemented together by a suitable composition and shaped into the form of a tube, which is open on one side so that it is horseshoe-like in cross-section, and the ends of which are joined together to make it circular and endless. The tube opening or slot is along the inside; and a solid rubber body is added along the outer circumference or periphery to constitute the tread portion of the finished casing. The general process of manufacture by hand, much older than the Seiberling and Stevens patent, was this: An annular metallic core having spokes and a hub was centrally mounted upon a shaft so that it could revolve, the core thus resembling the rim or tire of a wheel. This core was approximately circular in cross-section, and its cross-section diameter as well as its entire diameter through the hub from edge to edge of the rim were proportioned according to the size of the casing to be made. The operator coated this core with an adhesive sub-

stance. He then took a strip of rubber-impregnated fabric which would stretch out to be as long as the circumference of the core, and in width somewhat less than the circumference of the cross-section. As he revolved the core on its hub, he stretched and pasted this fabric strip upon the core, pressing and shaping it with his fingers or with hand tools so that it adhered in all places and was without wrinkles. He repeated this operation as many times as there were to be fabric layers in the casing. The impregnating composition, having the character of rubber, would also attach each two layers of the fabric together. The strip of fabric was cut upon the bias, and the warp threads therefore ran from the inner open edge of the tube in a diagonal course along, across and around the tube to the other open edge thereof; and the next layer of fabric put on was reversed so that these warp threads crossed those of the first layer at a selected angle. Where the ends of the fabric met each other, they were overlapped enough to make a pasted joint. Each layer of fabric was first pressed down and attached by the hand of the operator on its central portion throughout its length, thus constituting the part of the casing corresponding to the tread. The degree of lateral curvature here is slight, and there would be no difficulty in making a smooth attachment, but as it was continued around the remaining circumference of the cross-section, there would be an obvious tendency to gather and wrinkle. This wrinkling would be fatal to the strength of the casing, and it could be avoided only by careful manipulation and gradual shaping. The ultimately smooth and unwrinkled surface could be had by virtue of a quality which all woven material has had since weaving was known, *i. e.*, that it will contract in one direction as it stretches in another. When

a fabric is stretched in one diagonal direction, its square meshes become diamond-shaped, with the length of the diamond along the line of stretch and its width at right-angles. This produces a contraction of the fabric in the line of its width. In tire building, it is primarily the central part of the strip which is thus stretched longitudinally as it is attached to the tread of the core, leaving the side portions or wings projecting and free. Upon the same principle, if these side portions are then stretched laterally, they will shrink longitudinally, and, if this stretching is done in progressive measure as the edges are approached, the longitudinal shrinking will be greatest at the edge. In this way, it results that the fabric may be shaped smoothly and without wrinkles to the entire side core surface.

The Seiberling and Stevens patent seems to disclose a machine for doing this work automatically, instead of manually. The machine comprised (so far as now necessary to mention): first, a main power driven shaft which would indirectly engage and drive the core and with such selective connections that the core could be revolved at low speed or at high speed, or entirely released, as desired; second, a reel carrying the rubber-impregnated fabric strip; third, a tension roller retarding the reel, and thus causing the central tread strip of the fabric to be given a continuing stretch after the free end is attached to the core; fourth, a pressure roller or cylinder concaved on its exterior to match the shape of the tread of the core, whereby the tread portion of the strip was pressed upon and attached to the core as the latter revolved; fifth, an arm carrying, at its end, a laterally spring-pressed finger—"the jigger finger", and which arm was intended to be reciprocated rapidly, radially of the core, in such a way that the finger traveled in and

out radially, pressing against the side of the core as the latter revolved, and which pressure finger therefore traveled a saw-tooth course between the edge of the stretched, central, tread portion of the fabric and its final outer edge, and corresponded in function to the human finger pressing the fabric down against the core and stretching it into shape; sixth, a further arm containing a further pressure wheel to be applied along the edge of the attached fabric, after it was attached, to press it into a crease, constituting "stitching". The described operation is consistent with the idea that the side pressure-attaching finger would follow immediately the tread pressure roller, so that with one revolution of the core the machine would attach the fabric, press down the tread and press in the sides, and so that all of these devices would be in operation at the same time on the same strip. After one complete revolution, the core was stopped and the fabric cut away from the reel strip. If the one revolution had not been sufficient, then, after the fabric was cut away and the loose end pasted down, as many more turns could be had as necessary,—apparently with all the attaching means at work together,—if desired. Based upon the disclosure thus generally described, the patentees claimed:

> 1. "The combination in a machine of the class specified of a tension device to simultaneously smooth and flatten strips of fabric, a revoluble core to receive said strips from said device, means to form said strips approximately longitudinally about said core and means to regulate the tension on said feeding device."
>
> 2. "A machine of the class specified consisting of revoluble means to support the article

to be built while in the process of manufacture and means for creasing or stitching portions of said article on said revoluble means."

14. (The fourteenth claim does not differ from the second in any respect now material.)

The second and fourteenth claims must be held invalid for the same reasons pointed out with regard to claim 4 of the State patent, later discussed. The creasing rollers are hung on a swinging arm which happens to be attached to the frame of the machine. It might as well be fastened to the ceiling of the room. The pressure applied to the creasing rollers, which forces the fabric into the creases, is the pressure of the operator's hand. They are not at any time or to any extent operated by the mechanism which operates the other parts of the machine. They are "only used at intervals". There is no combination between these creasing rollers with their supporting arm and the other parts named in the claim. Their mutual relation is precisely that of the writing lead and the erasing rubber in the rubber-tipped pencil, where the only connecting link is the carrier. It may further be observed that claim 2 is not limited to a machine handling flat strips of fabric, unless by the phrase "in a machine of the class specified". This phrase, as found in other claims,—*e. g.*, 3,—shows no intent to effect such limitation. If the claim covers devices which receive and treat strips of fabric prewoven to form,—as it seems to,—it is anticipated by Johnston, Jeffrey or Moore.

We do not thus dispose of claim one. We are not prepared to say that it is anticipated or that there is no combination between its elements when they are treated as the specification indicates. The tread-pressure roller automatically effects the revo-

lution of the core. With it, the reel and the tension device may be in simultaneous operation. The side pressure fingers are reciprocated by tripping in a connection with the main driving mechanism, and may be operated simultaneously with the other just named parts,—at least, for part of their work. It is not necessarily fatal to the theory of combination that continuing the work of the pressure fingers may be necessary after the tension device has exhausted its function. Without intending to pass upon all the questions involved, we prefer to assume the validity of this claim and look to see if there is infringement.

The defendant's device is particularly described hereafter. It is enough now to say that it has no tread-forming roller which operates simultaneously with and in advance of the side-forming means, and that it has discarded the jigger finger, operated by the driving power of the machine, and has substituted side-pressing means of different form and operation.

Whether defendant's instrumentalities are equivalent to those of the Seiberling and Stevens patent, under any scope which the state of the art permits to the phrase "means to form said strips longitudinally along said core", is a question which we find unnecessary to decide. Another reason sufficiently requires the conclusion that claim one is not infringed. Out of the four elements named in the claim, the first is, "a tension device" which feeds fabric strips to the core, and the fourth is, "means to regulate the tension of said feeding device". In a certain sense, every tension device is, in itself, a means for regulating, and it is not impossible that, under some conditions, a tension device by itself might be held sufficiently responsive to the descrip-

tive words of both the first and the fourth elements; but this second claim must be construed to require the independent existence of the fourth element in order to make out infringement. This is the apparent force of the face of the claim. The specification carefully describes regulating means by which the tension resistance can be instantly varied at the pleasure of the operator, by turning an adjusting screw. The present first claim is a substitute for the first three claims as filed. At the time of filing, claims 1 and 3 contained no reference either to tension device or regulating means, while claim 2 did not mention a tension device separately from its included "means to adjust the tension on the feeding means". After a rejection, claim 3 was amended by inserting a reference to the tension device itself. After a further rejection, the three claims were cancelled and the present one substituted. It was then allowed. The applicant had presented one claim referring independently to the tension device and one claim referring independently to the means for adjusting the tension. With this in his mind, he withdrew them and presented and secured a claim calling for each of these elements as separately existing. The intent to regard the ability to modify the tension device as an essential part of the invention which was being patented, could not well be clearer. It seems now to have developed that this adjustability is not very important, in the commercial use of the machine; but these patentees then might well have believed that it was vital to an operative machine. They had in their minds a friction tension, and they saw that the amount of stretch to be given to the fabric by it would depend upon the length of the fabric strip under stretch, the width of the strip, the strength and other inherent qualities of the fabric, the extent and mois-

ture contents of the rubber impregnation and very likely the temperature and humidity of the air in the factory. All these conditions might change from hour to hour. Hence, the independent and separate call for regulating means can not be considered a mere inadvertence, the limiting effect of which a court would be inclined to escape, if possible. Although it may be voluntary and unnecessary, it must be given effect. (*McLain* v. *Ortmayer*, 141 U. S. 419, 425; *Arnold-Creager Co.* v. *Barkwill Co.* —C. C. A. 6—246 Fed. 441, 444.)

Defendant uses a different tension device. There is no efficient frictional resistance to the travel of the fabric to the machine, but the resistance is caused by a positive gear connection. The periphery of the fabric feed roller is compelled to travel at a speed proportionate to the peripheral speed of the core, and at a fixed percentage less. This percentage is determined when the machine is built, by providing, for the feed roller and for an intermediate roller peripherally driven by the core, intermeshing gears of the same number of teeth, and by making the feed roller of smaller diameter than the intermediate roller. After the amount of stretch is thus determined and fixed,—at, say, fourteen per cent., —it can never be varied,—unless by an expedient which plaintiff suggests and upon which theory alone he seems finally to rely to make out infringement of this claim. It is said that, by substituting upon the feed roller another gear with a greater or less number of teeth the speed of the feed roller can be increased or diminished. This is true; and it may well be that if the defendant's machine were built in contemplation of such a change, and if an assortment of gears were provided with it therefor, it should be thought to contain "means to regulate the tension"; but there is nothing to indicate that

the machine was built with any such purpose, or that the defendant has any means of thus regulating the tension, or ever has done so or desired to do so. In this situation, it seems an apt suggestion by defendant's counsel that we might as well say an ordinary table contains "means for regulating" its height, because we can take off the legs and put on some longer ones.

The theory that the constant stretch insured by defendant's mechanism constitutes both a tension device and a means for regulating it is urged by plaintiff's counsel, when they say that "to regulate" means "to maintain". To adopt this theory is to say that the phrase "means to regulate, etc.", adds nothing to the claim. We can not conceive any tension device which is not, in itself, "means to maintain" a fixed tension. Further, the theory would be, obviously, untenable, unless the patent were entitled to the most extreme liberality because it produced very great practical commercial results. It can not have such a degree of credit. If the machine in the patented form had proved successful, and had gone into extensive or even considerable use, it might be regarded in this light, even though it had not been generally accepted until aided by later patented improvements. This did not happen. One machine was built, but there is evidence that no tires were successfully made upon it, and that the jigger fingers would not smooth the sides so as to make first-class tires. Certainly, its attempted use by the Goodyear Company was abandoned, the machine discarded, and no other ever built.

We further find that upon the application for the State patent Mr. Seiberling, familiar with everything which had been done on the Seiberling and Stevens machine, made an affidavit that State's ma-

chine "was the first to successfully make such tires on a commercial scale by machinery." This affidavit does not work any estoppel, but there is every reason why we should accept it as true in its necessarily implied reference to the Seiberling and Stevens machine, and decline to give that patent the breadth of construction, beyond its letter, which is appropriate only for a great practical success.

Whether defendant employs any tension device "to simultaneously smooth and flatten strips of fabric", interposing, as it does, nothing between the feed roll and the means which throw the fabric out of flat, may be passed without consideration. For the reasons stated, it must be held that there is no infringement of claim 1.

The Seiberling and Stevens patent belonged to, or was practically under the control of, the Goodyear Company, one of the largest manufacturers of tires, and of which Mr. Seiberling was general manager. State was in the employment of the same company. After about five years, State filed his application for the second patent in suit. His machine was developed and his patent application prosecuted under the supervision of Mr. Seiberling. *State's machine was of the same general type as Seiberling and Stevens.* His most substantial change or improvement was that he discarded the reciprocal in-and-out forming-finger of Seiberling and Stevens and substituted a tool which he rightly calls a spinning roll. He provides, in the same general way, a core and a fabric reel and a retarding device, whereby he gets his strip of fabric attached to the core for the width of the tread portion, leaving the remaining wing portions projecting outwardly. Attached to the base of the frame which carried the revolving core was a standard,

manually adjustable horizontally to and from the core; that is to say, it traveled in a horizontal track, which track was an integral part of the frame. At the upper end of this standard was a revolving head or table, called, by State, a turret, and so plainly the turret of the common turret lathe that his choice of name was most natural. Mounted at four equi-distant points on the edge of this table are four tools, independent of each other except for their common base. The first carries the tread roller, the second the spinning rolls, the third the stitching rolls, and the fourth the bead attaching rolls. The turret standard was fixed in the plane of the revolving core, beyond the periphery thereof, and State revolved his turret until the tread roller was in the same plane, with its axis at right-angles thereto. He then moved the standard and turret forward so that the tread roller bore against the tread on the core, with such pressure as the operator chose to give it. When the tread was sufficiently smoothed down and attached, he moved the standard back, gave the turret a one-fourth revolution, bringing the spinning roll device to bear and moved that forward in the plane of the core until the operation of spinning down the side was complete. He then withdrew the standard, gave the turret another one-fourth revolution, and, in the same way, moved it forward again and used his creasing or stitching roll, if necessary. Then, again, by a similar operation, he brought into effect the fourth device on his turret, which was a bead-forming or trimming roll, to be used in certain cases only. In each instance, the time during which and the pressure with which the tool was to be applied (except for certain spring pressure) was regulated by the operator's hand. In no instance did the machine do anything except to keep the core re-

volving. The fact that the tools were mounted on a revolving table, which table was mounted on the frame of the machine, cannot be important. From the standpoint of an interdependent combination, the situation is the same as if these four tools had been lying upon a work-bench by the side of the operator and he had successively selected the ones he desired. While this is obvious, it is emphasized by the fact, clearly appearing, that operators using the State machine often discard the spinning tool mounted on the turret, and, after the tread is formed, spin the sides down by hand.

In the form of spinning tool shown in the patent, there are two rolls pressed toward each other by springs and operating upon both sides of the tire at the same time. There is, thus, an automatic feature to the pressure with which the spinning rolls are applied; but this does not show the existence of any combination with the remainder of the machine. A hand tool with two oppositely spring-pressed rolls would work in the same way if it were hung from any support, or held only by the workman; and there is no relation of dependency between the automatic action of the springs and the automatic action of the revolving core. They both affect the material at the same time, and that is the most that can be said. The fabric reel and the tension device have finished their function when the first revolution is completed and when the strip of fabric has passed once around the core and has been cut and the pasted-on joint made. They have no further office in the building of the tire than if they did not exist. The tread-forming roller then is brought into play and finishes its function and drops out of action. Then, and only then, the operator brings the spinning roll to bear. It performs its work precisely as it would if the fabric strip

had been stretched and attached wholly by hand; and the sides of the tire, the tread of which has been formed by the aid of the machine, may be spun down and attached by hand operation just as they are by State's device. We do not intend to deny that a true combination may sometimes be found where the same underlying mechanism operates all parts of the machine and where different elements separately act in successive steps upon the raw material as it is being transformed into the ultimate product (though the latest decision of the Supreme Court,—*Grinnell Co.* v. *Johnson Co.*, 247 U. S. 426, perhaps tends to the contrary); but the trouble here is more vital. State's spinning tool has no operating connection whatever with the remainder of the mechanism. Each part performs its own work in its own way, and no new result flows from bringing the two into juxtaposition. We may find further illustration in the familiar turning lathe. If the cutting tool is carried in a holder which automatically travels along a line parallel to the axis of the revolving chucks which hold the material being shaped, we can see the combination between the chucks and the cutting tool; but not so, if the tool-holder is moved along its path by the operator's hand,—even though the path be upon a fixed guide.

In *Gas Co.* v. *United Co.*, 228 Fed. 684, we considered the distinctions between aggregation and combination. Applying to the present case the principles there developed and the authorities there cited, we are satisfied that there is no true combination between State's revolving core and his independent spinning tool, or between such core and his independent tread-forming roller, or between such roller and such spinning tool. The *Grinnell* case, *supra*, may involve the difference between that put-

ting of old elements into a co-acting relationship which is invention as distinguished from a similar putting together which is merely skill, rather than involve the distinction between elements which form a composite as distinguished from an aggregate; but, however that may be, that decision fortifies the result which we reach here. It is not easy to see any difference in principle between a device which first washes a garment, and then, by separate mechanism, dries it, and a device which first shapes and attaches the tread of the tire, and then, by separate mechanism, attaches the sides.

This conclusion invalidates, because of mere aggregation, claim 4[1] and all the other claims of the State patent sued upon (except the fifteenth, seventeenth, and perhaps the eleventh). We might safely rest our decision thereon; but *plaintiff really presents his case on the theory that State discovered a new method of making tire casings* or a new set of functions to be performed by associated mechanism. Although a mechanical patent may not be granted for a function (*Westinghouse* v. *Boyden Co.*, 170 U. S. 537), yet it is now settled that a method patent may be granted for an association of successive mechanical steps (*Expanded Metal Co.* v. *Bradford*, 214 U. S. 366), and to hold a mechanical patent void for aggregation, when the same monopoly sought by the patent might have been obtained through a method patent, seems somewhat artificial; hence, *we prefer to point out also that State had nothing broadly new either in his method or in his selected tools;* and that so far

[1]Claim 4. An open tire-shoe making machine, comprising the combination of a sheet-fabric supply, a power driven ring-core, a radially moving support laterally spring-pressed toward the core, and a spinning-roll mounted on the support, for passing radially along the sides of the tire-shoe, to shape the sheeted fabric on the core, substantially as described.

as some details may be new, they are not used by defendant.

The art of shaping a flexible sheet of metal over irregular forms or dies, circular in cross-section, was very old and was known as "spinning". This was done by clamping the metal sheet upon the form, revolving both together rapidly upon the axis of the circular cross-section, and then with a tool, —which might be a narrow or sharp-edged roller or disc held in a yoked handle,—pressing the metal down against the form. The spinning disc, being held in a plane substantially tangential to the circumference of the form at the point of contact, would itself be caused to revolve; and, if it were slightly inclined inwardly from this tangential plane, it would gradually move down along the side of the form and its path thereon and upon the metal would be helical. The successive coils of this travel might be so close together that they practically touched each other, and so the whole surface of the sheet and of the form would be covered by this travel and the sheet would be stretched and shaped to the form. If State had been the first to observe that this spinning process could be applied to shape a tire upon its core as well as to shape a bottle cap upon its core, the question of whether there was invention in the transfer would have required consideration; but he was not. *The evidence that this identical spinning operation was performed upon tire casings by hand tools before State's invention is sufficiently satisfying to meet all the requirements of the situation.*

One witness testified that this spinning operation with a hand tool was common practice for smoothing down the sides of tires at a date three years earlier than the building of the first State machine; one told of the same practice in use at

Detroit the same year State was constructing at Akron; and one seems to refer to it as a common practice in the Goodyear shop in 1903. Considered critically, all this testimony might not be sufficiently definite and positive to prevail by itself against circumstances tending to throw doubt upon it; but there are no such circumstances. When defendant's proofs closed, this proposition would ordinarily be taken as fairly established; *Messrs. State and Seiberling were called as witnesses on the rebuttal; both were familiar with the history of the art; neither one denied or questioned this proposition; nor did any other witness for plaintiff. More than this, State, in his specification, speaks of this spinning operation as if it were well-known hand practice, and seems to rely upon the advantages of his tool over the existing hand method. This is not all: the Seiberling and Stevens patent shows what it calls creasing or stitching rollers. Each one is undoubtedly an effective spinning tool and capable of use as such;* their edges, as shown, may be sharp enough to cause some danger of cutting the fabric, but the spinning would be done by the side bevels, not by the extreme edge; and plaintiff's theory that defendant's spinning roll is so far the equivalent of the Seiberling and Stevens stitching rolls as to make out infringement of the claim based thereon goes far to persuade that they are, in a broad sense, an anticipation of State's spinning roll. *There seems no sufficient reason to doubt that Stevens used them for spinning in 1903 or 1904. The Moore patent shows what is, essentially, a spinning roll for operating against a revolving core in making a tire casing.* It was intended to and did smooth down the Moore tire from the center of the tread only part way, and not much further than may be done

by the typical tread-forming roll; but the operation is substantially spinning, as far as it goes, and involves, in some degree, the characteristic relocation of the threads of the fabric, even though it may only put them back where they were before the casing was distorted by placing it on the core. In the Moore patent, the handle of the spinning roll was so attached to its frame that the roller could not effectively travel radially of its core down as far as the bead, but if its attaching staple is made larger, the whole tire can be formed thereby, as demonstrated. *Further, there is no reason to doubt that State and Seiberling were familiar with the character of patent protection, and were advised by competent counsel. If they had thought that State was the first to shape the sides of the tire by the spinning operation, it is highly improbable that he would have omitted to apply for a method patent.* Still further,—it is conceded that the Belgian patent is a complete anticipation of State as to the matter of employing a radially-moving spinning roll in this type of tire-making machine for shaping the side of the tire,—unless plaintiff is right in his contention that in the Belgian patent the fabric was first partially attached to the side by a device resembling Seiberling and Stevens' jigger fingers, that this operation left wrinkles and puckers, and that the spinning roll was used only to remove these wrinkles and perfect the attachment. We do not see that this alleged distinction is very important. *No matter if the fabric has been already partially attached,—as much as is consistent with any reasonable theory of operation,—the tool of the Belgian patent is a spinning roll, and performs a spinning operation; and, if we are right in what we subsequently say regarding the "centrifugal force" theory, the Belgian tool in its*

radial progress was bound to stretch and reshape the fabric in substantially the same way that is done by State. Putting all these things together, *State can not be considered as the inventor of the method;* and hence there is no reason to hesitate at the result reached because of aggregation.

One group of State's claims is distinguished by the call for shifting the revolution of the core from a slow speed while the fabric strip is being put on to a high speed while the spinning is to be done. Seiberling and Stevens did the same thing, so far as concerns any broad idea, and the particular devices by which alone State distinguishes this part of his action from Seiberling and Stevens are not employed by defendant.

Another group of claims is characterized by the requirement that the spinning roller should be set in a plane at "a receding angle" to the plane of the core. It is not clear that this thought imparts any novelty to the claims. The same angle is shown by the Seiberling and Stevens stitching rollers, and it was certainly open to the user of any hand tool to apply it in this specified plane. However, the defendant does not do this; the claim of infringement in this is based upon a confusion of thought. If we picture the spinning roller as a disc,—whereby its plane is more sharply conceived,—and if we assume that the core is vertical and its axis horizontal, and that the disc is to be applied to the core midway from top to bottom, we observe that the plane of the core and the vertical plane of the axis are at right-angles to each other, and that the relationship of the plane of the spinning roll to the plane of the core, and its relationship to the plane of the axis, are independent of each other. The plane of the spinning roll may be at right-angles to the plane of the core and at the same time at any selected

angle to the plane of the axis. So far as concerns the first relationship above stated, defendant's spinning roll is normally set with its axis horizontal and parallel with the core plane, and therefore operates in a plane at right-angles to the plane of the core; but it is capable of adjustment to, and is intended sometimes to operate in, a plane not at a receding angle to the plane of the core, but at an angle which, as compared with that shown by State, is more than ninety degrees,—an advancing angle. In other words, its carrying yoke, normally at a right-angle to the core plane, may be swung slightly on its pivot toward the outside of the core. The only purpose and utility indicated by State for his receding angle are that the disc may not become entangled with the out-flying skirts of the fabric, and the angles adopted by defendant, for normal use or for special setting, tend to produce the very result shunned by State. In the machines used by defendant the spinning roll may be manually placed at the "receding angle", but in operation it will not stay there, but returns at once to the right-angle position. Defendant did at one time make some use of a machine embodying this "receding angle", but it was not practically more than experimental and has been abandoned, and was too negligible to justify any judicial action based thereon. The defendant does set its disc at an angle, which may be called "receding", to the vertical plane of the core axis; the disc axis (in the form assumed) ceases to be horizontal, being shifted perhaps ten degrees; but this is a different matter. This setting is for a purpose different, and causes a result different from anything found in State. It brings a constant radial slip or wipe of the roller upon the fabric, and directly causes a radial stretch. The claims of this group are not infringed.

If the "forming roll" of claim 11 is the spinning roll, the claim is invalid for aggregation; if this "forming roll" is the tread roller, then the claim is anticipated by the Seiberling and Stevens machine.

Claim 15 suggests nothing new over Seiberling and Stevens, excepting a yieldingly mounted take-up roll for receiving a layer of muslin, or thin cloth, which is upon one face of the rubber-impregnated fabric as it is rolled upon the supply reel. Precisely the same take-up roll is shown in older machines for feeding similar rubber-impregnated fabric to make rubber belting. It can not be important that the fabric in this case is received by a revolving core, rather than by the receiving mechanism of the old machines. The take-up roll does its old work in its old position and for its old purpose. Its transfer from the old machines to Seiberling and Stevens discloses no inventive novelty. Claim 17 also reads upon Seiberling and Stevens, save for the addition of "a stretching roller between the tension device and ring core whereby the longitudinal creases are taken out of the fabric and it is smoothly and evenly supplied to the ring core". This also discloses the adoption of a device in common use for the same purpose in analogous situations; but its declared purpose and effect are to avoid the very operation which defendant employs. This stretching roller is for the purpose of delivering the fabric to and upon the ring core in a smooth and flat state. Defendant interposes a convex shoe which delivers the fabric strip to the core in a curved or U shape. The curved shoe or form which gets the latter result could not be considered the equivalent of the flat rollers which get the former without a much greater degree of liberality than is,—at the best,—permitted by the state of the art.

Claim 14 is not sufficiently typical to justify using it as the criterion of infringement, as plaintiff would have us do; but, if it were, it shows still another reason why plaintiff must fail. It calls for a stock roll, a ring core, "a radially and transversely movable support, a tread forming roll and a laterally yielding spinning roll for passing radially over the sides of the tire shoe mounted thereon", etc. The tire shoe is not mounted on the spinning roll; the clause "for passing * * * tire shoe" is parenthetically descriptive, and the claim must be considered as specifying a radially and transversely movable support having mounted thereon a tread roll and a spinning roll. Defendant has no one support carrying these two rolls, but has two independent supports. One is movable radially, neither tranvsersely. The claim plainly refers to the revolving turret, when it says "support", and defendant has nothing equivalent.

The argument for plaintiff takes the Seiberling and Stevens invention of 1903 and the State improvements of 1908 and puts them together as constituting one pioneer patent dated in 1903; or, stated in another way, it takes the large public acceptance and use of the State patent and thereby attributes merit to the Seiberling and Stevens patent, overlooking the undoubted fact that *the first reasonably successful commercial machine was that of Vincent*, who intervened between the two. It goes without saying, that the Seiberling and Stevens patent is just as effective in denying to State the position of pioneer as if it had not happened that both have been controlled by the same interests.

We are told that the centrifugal force disclosed by State's operation caused the unattached skirts of the fabric to fly out at right-angles to the plane

of the core, and that the effect of the spinning tool slowly advancing against this skirt was to produce a "hinging and folding action" which was novel and important. We are not impressed by this claim. These words do not seem very appropriately descriptive, but *the action which takes place not only pertains to a method or process rather than to any particular mechanism, but it was more or less inherent in the rapid revolution of the core effected by older means, and in the use of any spinning, stitching or creasing rollers.* It is not the "hinging and folding" but the radial stretching, and the resulting circumferential contraction, that bring about the desired smoothness. It is possible that in State's particular form of device, with his spinning disc at its "receding angle", and practically tangential to the core circumference at the point of contact, there will be enough "hinging and folding" back over his tool to produce a friction which would cause more stretch than could the mere rolling advance of the disc in its helical path; but if there is an appreciable effect of this kind, defendant does not have it. Defendant gets its stretch from the slip or wipe which is compelled by the fact that the spinning disc can not roll unobstructedly in its own plane,—which fact results from its inclination toward the plane of the core axis. This very inclination puts part of the disc out beyond the supposed line of "hinging and folding", and prevents a fold at the point of contact. *Centrifugal force is not mentioned, in State's specification, save as creating an obstacle to be avoided. Perfectly successful spinning performed in court, upon a slowly revolving core, demonstrates that the outflying skirts are not essential. To make centrifugal force an effective basis of validity in the State's patent would be to give a monopoly of the*

spinning process or of rapid core rotation; and each was old.

We are also told,—and upon this plaintiff seems to place great reliance,—that Seiberling and Stevens or State,—we are not sure which, but apparently by some kind of joint action,—discovered and accomplished for the first time such a distortion of the fabric meshes as gave great strength to the built-up casing. This result plaintiff's counsel denominates "the rearrangement of the reticulations" and "placing the threads in geodetic lines". There was nothing new about this. On the contrary, it had been present in every smooth fabric tire casing that had ever been made by anybody. As we pointed out in the early part of this opinion, it is inherent in shaping a fabric to an irregular surface. It consists in the fact that when the rectangular mesh is expanded on one diagonal axis it will contract upon the other. Outside of tire casings themselves, a familiar instance is the shaping of canvas to cover the hull of a canoe. Still more familiar is the handkerchief or the collar, unevenly ironed. This discovery by plaintiff or his counsel was in the realm of nomenclature, not of mechanics.

The decree must be reversed, and the record remanded with instructions to dismiss the bill.